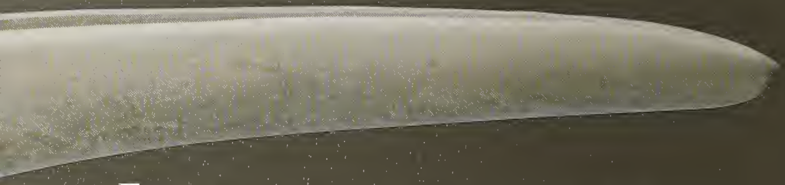
Asian Traditions in Clay

THE HAUGE GIFTS



From a seven-thousand-year-old Iranian vessel to whimsical animal-shaped pots from medieval Cambodia to colorful, exuberant tiles and serving ware from the Islamic world, the ceramics included in *Asian Traditions in Clay: The Hauge Gifts* are some of the most spectacular in the world. Given recently to the Arthur M. Sackler Gallery by the Hauge family of collectors, these important ceramics complement and expand the Sackler's collections—and by extension those of the Freer Gallery of Art, the institution that together with the Sackler forms the Smithsonian's national museum of Asian art.

By juxtaposing ceramics from the three cultures included in the Hauge collections, the authors examine techniques, form, function, and trade and thus emphasize both the singularity of each ceramic tradition and their similarities. Ceramics enthusiasts and specialists such as archaeologists and historians, as well as those interested in the arts and cultures of ancient Iran, the Islamic world, or Cambodia during the artistic and spiritual zenith under Angkor, will find this book informative and illuminating.

Asian Traditions in Clay

IN MEMORY OF

GRATIA BEATRICE HAUGE

Asian Traditions in Clay

THE HAUGE GIFTS

1944–

Louise Allison Cort

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Massumeh Farhad

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Ann C. Gunter

FREER GALLERY OF ART AND ARTHUR M. SACKLER GALLERY

SMITHSONIAN INSTITUTION, WASHINGTON, D.C.

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Cover, cat. no. 7, beak-spouted jar, Iran, Iron Age I–II (ca. 1400– 800 b.c.), earthenware, 17.4 x 37.7, gift of Osborne and Gratia Hauge, s1998. 23; page 2, cat no. 40, bowl, Iran, probably Kashan, late 12th century, stone-paste with luster, 7.8 x 17.3, gift of Osborne and Gratia Hauge, s1997.113; page 5, cat. no 76, elephant-shaped vessel with spout, probably Thailand, Buriram Province, 12–13th century, brown stoneware with iron glaze, 22.2 x. 20.8 x 25.2, gift of Osborne and Gratia Hauge, s1996.124; endpapers, cat. no. 44, tile, Iran, 14th century, stone-paste, 20.9 x. 21.3 x. 2.0, gift of Osborne and Gratia Hauge.

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FOREWORD

Ceramics are among the oldest and most diverse of the artistic accomplishments of the peoples of Asia, and one of the first to be seriously collected and studied in Europe and America. Charles Lang Freer's founding gift to the nation, establishing the gallery that opened in 1923, included superb examples of the ceramics made in China, Japan and Korea, as well as the Islamic Near East. Over the decades, the Freer Gallery's collections have grown steadily in scope and quantity through gifts, purchases, and bequests, and now compose one of the most extensive and important ceramic collections in the world.

Since 1993, the Freer Gallery of Art has been physically and programmatically linked to a new institution, the Arthur M. Sackler Gallery; together they now form the national museum of Asian art for the United States. In recent years, the collections of both galleries have been dramatically expanded through a succession of major donations given jointly by Osborne and Gratia Hauge and Victor and Takako Hauge. Arthur M. Sackler had been keenly interested in collecting works from the earliest artistic traditions of Asia, and a small group of ancient Iranian ceramics was included in his inaugural gift. Over the Sackler Gallery's first decade, that collection was substantially augmented by several additional acquisitions, the largest and most wide-ranging of which has added very significant ancient and Islamic Iranian ceramics, as well as a significant group from Southeast Asia. These were given jointly by the Hauges between 1996 and 1998. Since neither gallery had assembled Khmer ceramic objects, the Hauge gift also inaugurates our collections in this area.

The Hauges formed the major portion of these collections during the 1960s and early 1970s—a fortunate period, since Iran and Cambodia became almost completely inaccessible to scholars and travelers from the United States until the gradual reopening of these regions during the past few years. The Hauge gift both helps to celebrate the reemergence of American interest in these important countries and coincides with our delight in renewed opportunities to work with colleagues in Iran and Cambodia. It was their own extensive experience of living and working in Asia that led the Hauges to collect ceramics with a focused and informed passion.

These extraordinary gifts present the Freer and Sackler galleries with rich new opportunities for research, exhibition, and publication, and will certainly help to develop a new generation of scholarship. This special exhibition offers an initial opportunity to display a selection of these important works to a wide audience, in many cases for the first time. It will be followed by further art historical and technical studies of the collections, with future exhibitions and publications that enable us to share this national and international cultural wealth with visitors both within and beyond the walls of the Freer and Sackler. For this opportunity, the Freer Gallery of Art and the Arthur M. Sackler Gallery are deeply indebted to Gratia and Osborne Hauge, and to Takako and Victor Hauge.

Sadly, Gratia Hauge passed away on 25 February 2000. All of us at the galleries are heartbroken that she was not able to see this book and exhibition and receive our public expression of thanks. We will remember fondly her zestful, exuberant spirit.

MILO CLEVELAND BEACH
Director, Freer Gallery of Art and
Arthur M. Sackler Gallery

ACKNOWLEDGMENTS

TOGETHER, the three authors begin and end their acknowledgments with heartfelt appreciation to Osborne and Gratia Hauge and Victor and Taka Hauge, for entrusting three wonderful collections to the Arthur M. Sackler Gallery. The adventure of producing this book and the accompanying exhibition began with the Hauge gifts, which enriched the gallery's collection and each of us personally as we took on the challenge of narrating the histories of three groups of very special pots. The Hauges' friendship and their unbounded enthusiasm for this material have been our ongoing inspiration.

Ann Gunter extends her appreciation to Alice Petty, department of Near Eastern studies, Johns Hopkins University, for her assistance during initial research on the Hauge gift of ancient Iranian ceramics, and to St John Simpson, department of Western Asiatic antiquities, British Museum, for inspiration and example. Ellen Salzman of the Freer and Sackler galleries' department of conservation and scientific research provided prompt and expert attention to conserving works in preparation for this exhibition. Paul Jett and Blythe McCarthy of the same department offered helpful comments on a draft of the essay. Barbara Brooks-Reeder took care of manuscript revisions with customary efficiency. By attending to many details of curatorial schedules and responsibilities, she provided important support to this project for both Ann Gunter and Louise Cort.

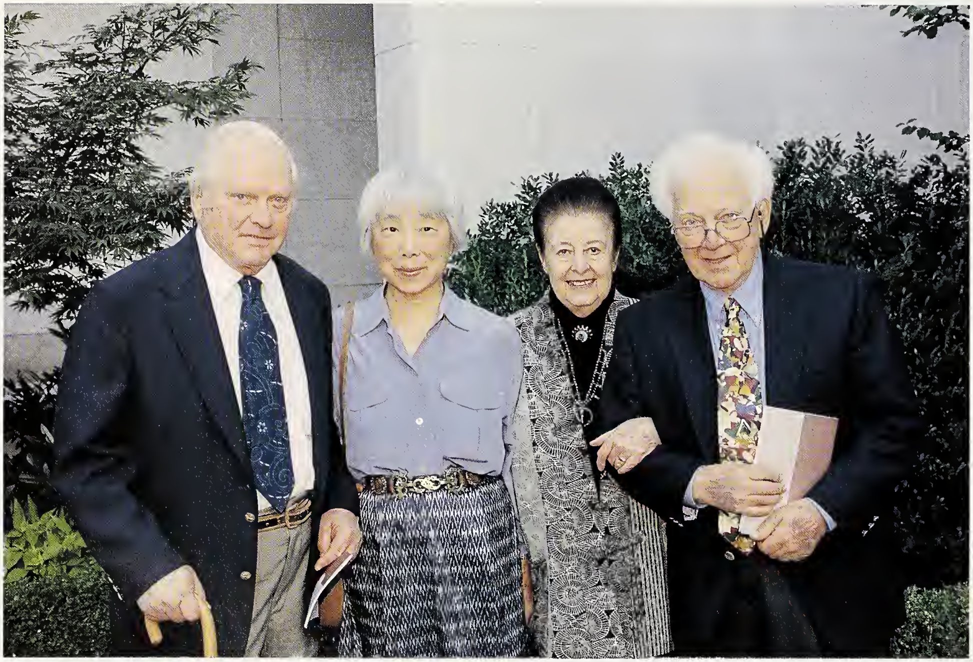
Massumeh Farhad would like to thank Tom Lentz for reading earlier drafts on her essay and for his invaluable suggestions; Jessica Hallett and Scott Redford for sharing their views on recent scientific research and analysis on Islamic ceramics; and Carol Huh for all her steadfast assistance throughout this project.

Louise Cort thanks Director Khun Samen, Deputy Director Hab Touch, and Librarian Lim Yi, of the National Museum of Cambodia, Phnom Penh, for making available for study the museum's collections and documentation; Ang Choulean,

APSARA, for facilitating visits to the Tani kiln site and Conservation d'Angkor, as well as for illuminating comments on the Hauge Khmer ceramics; Aoyagi Yoji and Marui Masako, Sophia University Angkor International Mission, and Nishimura Yasushi and Sugiyama Hiroshi, Nara National Research Institute for Cultural Properties, for sharing data from their respective excavations at the Tani kiln site; Marc Franiatte, French Archaeological Mission in Cambodia, for discussion of ceramic finds at the Royal Palace; and Elizabeth Moore, Kim Sedara, and Marrie Y. Schaefer, for invaluable support. Fujiwara Hiroshi and Yajima Ritsuko made available collections in Japan. Pamela Vandiver shared fruitful discussions of the technology of the Hauge Khmer pots and initiated technical studies of Khmer sherds in the Freer Gallery Study Collection, donated by Victor Hauge, Roy Galloway, Fujiwara Hiroshi, and others. Nishimura Yasushi, Tatsumi Jun'ichiro, Miyata Etsuko, and Sumita Tokiko prepared measured drawings of the Hauge Khmer pots under the auspices of the Smithsonian Institution—Bunkacho Collaborative Research Initiative. Roland Mourer shared his research on Khmer ceramics, while Frank Huffman, Pamela C. Rasmussen, Miriam Stark, and Geoff Wade helped resolve specific research points. David Chandler and Pamela Vandiver gave critical readings of the manuscript.

The three of us join in thanking Milo C. Beach, director, and Thomas Lentz, former deputy director of the Freer and Sackler (now director of Smithsonian's International Art Museums Division) for initiating the project that has brought us so much pleasure.

Jane Norman, Ellen Salzman, and Blythe McCarthy in the department of conservation and scientific research, as well as former colleague Stephen Koob, oversaw conservation of the ceramics. Karen Sagstetter, editor-in-chief, supervised the catalogue's creation, while Lynne Shaner, our undaunted editor, wove three manuscripts into one book text and Patty Inglis created a unifying design. Robert Harrell and John Tsantes provided their customary superb photographic work. Richard Franklin and Nancy Hacskaylo, together with many others in the design department, installed the three ceramic groups harmoniously in the exhibition. We also extend our warm thanks to all the other gallery staff members who contribute their respective skills and creative energies to the realization of every book and exhibition.



The Hauges (l to r): Victor, Takako, Gratia, and Osborne, at the Freer Gallery of Art, October 1998

INTRODUCTION

Since 1996, Osborne and Gratia Hauge and Victor and Takako Hauge have presented three remarkable collections of Asian ceramics to the Arthur M. Sackler Gallery. The Hauge collections of the ceramic traditions of ancient Iran, the Islamic Near East, and the Angkorean kingdom in Southeast Asia arose from the Hauges' own experiences of living and traveling in the regions where these strikingly diverse ceramic wares were made. Seen together in juxtaposition, these wares dramatically demonstrate the range of ceramic traditions in Asia.

In the course of many years of residence and travel abroad, the two brothers and their wives were able to pursue their interest in the arts—both ancient and modern—of Asia. They developed a particular interest in ceramics, ranging from the prehistoric to the contemporary, of which they assembled a large collection. Friendships of many years with scholars and established dealers aided in the search.

While living in Teheran from 1962 to 1966, Osborne and Gratia had the opportunity to acquire newly discovered earthenwares from ancient sites, along with a variety of Islamic wares, some of which had been hidden for centuries in large storage jars. To these Victor and Takako were able to add from the international auction market and a visit to Teheran in 1967.

Interest shifted to Southeast Asia with Osborne and Gratia's move to Bangkok in 1967, where they stayed six years, followed by two in Saigon. Their enthusiasm for wares little known in the West was reinforced by visits from Victor and Takako in the early 1970s, on one of which Victor explored newly reported Khmer kiln sites at Ban Kruat on the Thaï-Cambodia border. Most of the Khmer wares later collected in the open market proved to be from the Ban Kruat region, which was once within the Khmer Empire.

The Hauge collection of ancient Iranian ceramics, acquired between 1962 and 1967, consists of eighty earthenware vessels ranging in date from about 5000 B.C. to the second century A.D.

Burnished, painted, or glazed, they represent chiefly the ceramic traditions of northern and western Iran. In their quantity and extensive chronological scope, they expand significantly the ancient Iranian ceramic holdings of the Arthur M. Sackler Gallery. With the addition of the Hauge gift, the museum will be able to illustrate through exhibitions and publications the major ceramic developments in these Iranian regions over a span of about seven thousand years. These vessels also provide abundant evidence for interaction between ceramics and metalwork in shape, color, and surface treatment, illustrating aesthetic ideals of ancient artisans who worked in these media. Their arresting shapes and decoration have also evoked the admiration of the twentieth-century viewers who witnessed their rediscovery.

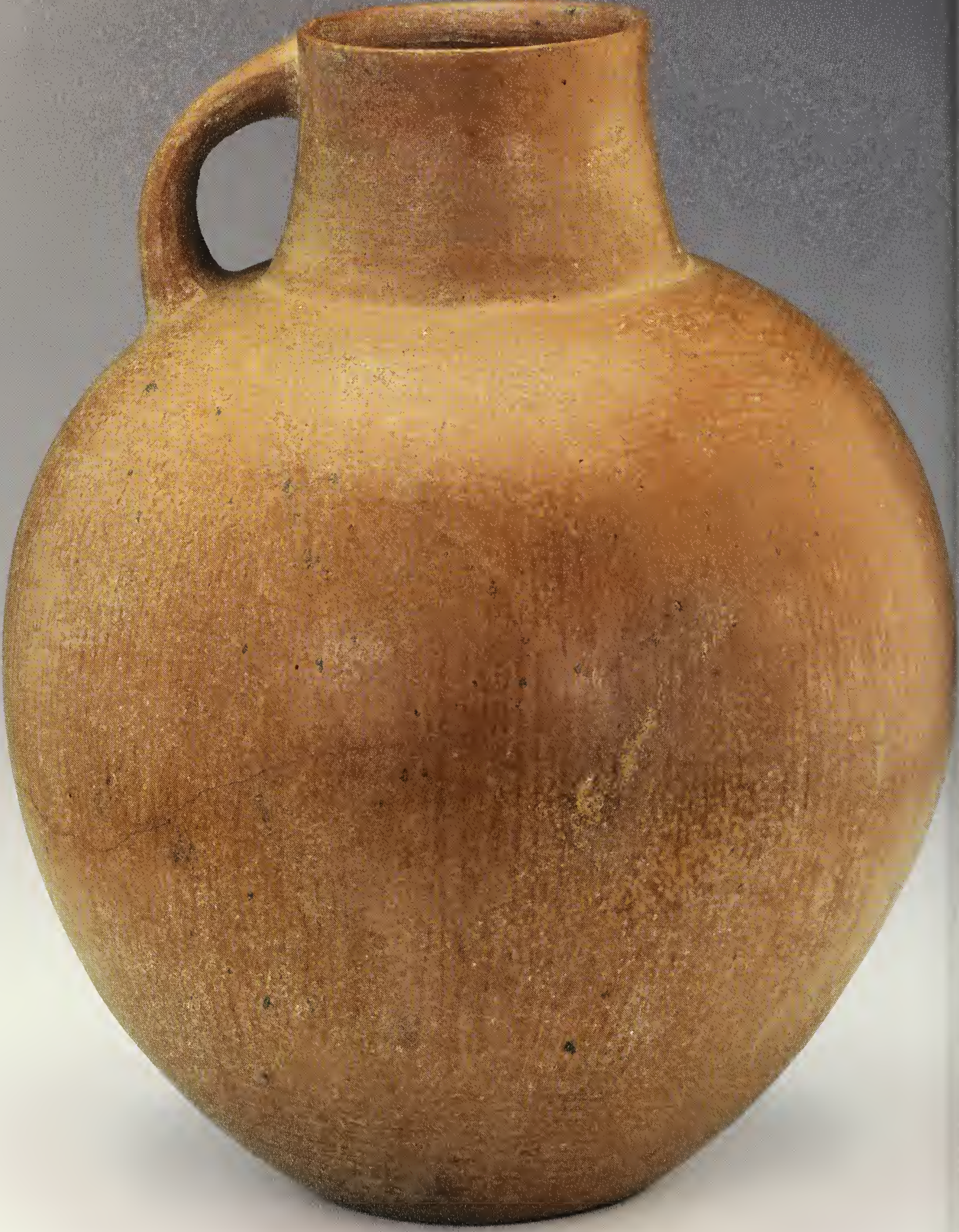
Twenty-three ceramic vessels and tiles from the Islamic world are included in the Hauge gift. These range in date from the ninth to the early twentieth century and are representative of some of the most important ceramic techniques and traditions that flourished primarily in Iran and Iraq after the advent of Islam in the seventh century. Some of the vessels, such as the ninth-century "blue-on-white" bowls, exemplify well-known luxury wares, while the whimsically decorated beehive covers belong to less familiar, quotidian traditions that are unrepresented in most collections. In its variety and scope, the Hauge collection greatly extends the chronology of the Sackler's existing holdings of ceramics from the Islamic world, which are composed primarily of Persian pottery of the late fifteenth century and later. The variety of styles and techniques provides a more comprehensive context of West Asian ceramics and complements the collection of calligraphies, paintings, and drawings in highlighting some of the common decorative language.

The Khmer ceramic vessels in the Hauge gift to the Sackler Gallery join a body of ceramic wares in both the Sackler and the Freer Gallery of Art that represents the stoneware and earthenware traditions of Southeast Asia, including Vietnam, Thailand, and Burma. Among these, the Hauge gift is the largest and most diverse group of wares of a particular culture and type.

Victor and Takako Hauge also presented a group of Khmer ceramic sherds to the Freer Gallery of Art Study Collection. The four hundred twenty-five sherds were collected during a single exploratory visit by Victor to the kiln sites in the vicinity of the district town of Ban Kruat, near the Thai-Cambodian border in Buriram Province, Northeast Thailand. These sites were the first to be identified for the production of Khmer ceramics, with the exception of a site in Cambodia on the Kulen Plateau northeast of Angkor that had been recorded in the late nineteenth century but, by the early 1970s, was inaccessible. Evidence of sherds from the Ban Kruat sites was of profound importance for establishing clearly the identity of "Khmer ceramics" and distinguishing them from the products of Siamese kilns in Thailand, with which they commonly had been confused.

As part of the Freer Study Collection, the Hauge Khmer sherds provide material for scientific analyses of clay body and glaze, necessary to remedy confusion that has prevailed about the basic materials of Khmer ceramics. Pamela Vandiver of the Smithsonian Center for Materials Research and Education has begun such research; her initial findings are reported here. The Hauge Khmer sherds joined other Khmer material already in the Freer Study Collection, including sherds collected at Ban Kruat on separate visits by Dean Frasché and Roy Galloway as well as Khmer and related objects acquired by Charles Nelson Spinks, John Alexander Pope, John Menke, and Fujiwara Hiroshi.

The Hauges hope that the preservation and display of the artifacts that compose their gifts will enhance the knowledge and understanding of the cultures that produced them, and that their enduring beauty will give pleasure to later generations.



Ancient Iranian Ceramics

Ann C. Gunter

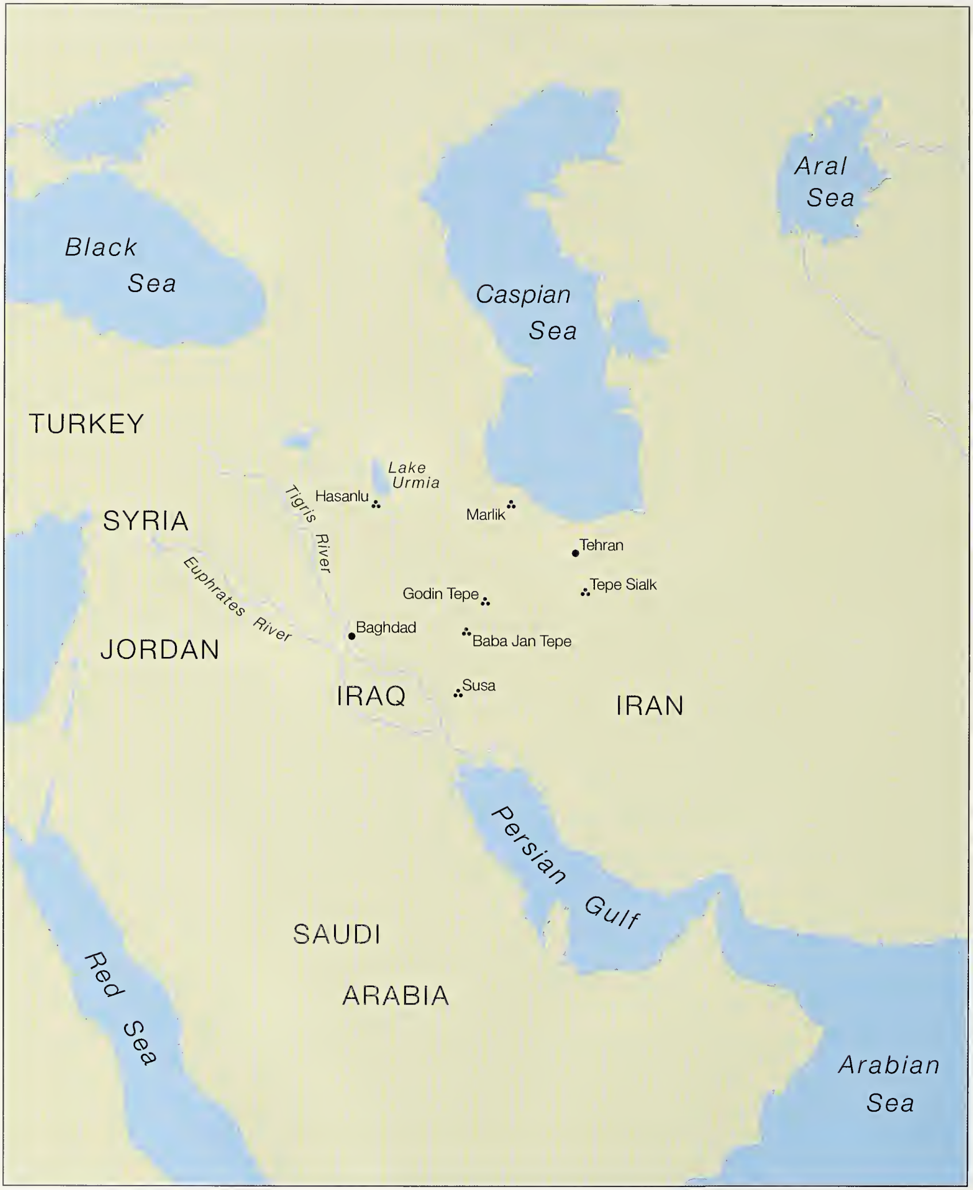
By far the oldest objects in the Hauge collection are the ancient Iranian wares. Potters in Iran began making clay vessels in the seventh millennium B.C., creating one of the longest continuous records of ceramic achievement on the Asian continent. Until the first millennium B.C., however, few written records are available with which to reconstruct Iranian history. Archaeological evidence, therefore, forms the primary source for tracing cultural developments within and among regions, and with the wider world surrounding Iran.

Iran is a large upland plateau enclosed on all sides by physical features that form natural barriers to easy communication with its Southwest Asian neighbors and have encouraged regional traditions in ceramic production as well as in many other forms of cultural expression.

Archaeologists first explored the prehistoric cultures of Iran in the southwestern province known today as Khuzistan. Here the Zagros Mountains yield to lowland plains that are geographically and environmentally a part of the lower Tigris and Euphrates River Valleys. In both prehistoric and historic times this region has been so closely linked with cultural developments in neighboring southern Mesopotamia that the area as a whole is often known as Greater Mesopotamia. Excavations at the site of Susa produced examples of a distinctive style of Iranian painted pottery dating to about 4000 B.C., demonstrating that early, sophisticated ceramic traditions had also developed independently. Beginning in the 1930s, and more intensively during the 1950s and 1960s, archaeologists sought evidence for still earlier settled habitation over a broader region of western Iran. The well-watered foothills and upland plateaus of the Zagros

Note to reader: all dimensions are in centimeters; height precedes width unless otherwise specified.

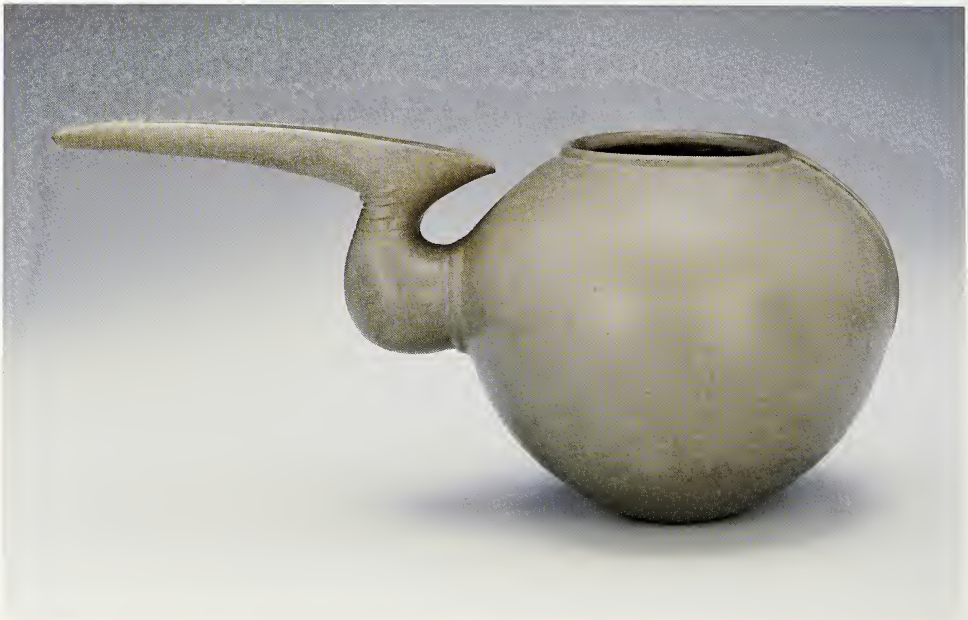
Cat. no. 8. Jug, Iran, Iron Age I–II (ca. 1400–800 B.C.), earthenware, 36.1 x 29.0. Gift of Osborne and Gratia Hauge, S1998.24



Black Sea
Caspian Sea
Aral Sea
TURKEY
Lake Urmia
Hasanlu
Tigris River
Marlik
SYRIA
Tehran
Euphrates River
Godin Tepe
Tepe Sialk
Baghdad
Baba Jan Tepe
JORDAN
Susa
IRAQ
IRAN
Persian Gulf
SAUDI ARABIA
Red Sea
Arabian Sea

Mountains nurtured some of the earliest farming villages found anywhere in Southwest Asia, together with pioneering experiments in the production of wares made from fired clay. The earliest painted wares so far discovered in Iran come from the Neolithic (circa 6000 B.C.) sites of Hajji Firuz Tepe and Yanik Tepe, both near Lake Urmia in northwestern Iran, and Tepe Sarab in Kurdistan. From the subsequent Chalcolithic period (circa 5500–3000 B.C.), distinctive painted styles have also been excavated at sites in Azerbaijan Province and in Kurdistan, but are also present in the vicinity of modern Tehran at the site of Cheshmeh Ali.[1] Initially, at least, the ceramic assemblages of these prehistoric sites served primarily the archaeological aims of distinguishing regional traditions and chronological phases.

Northwest of Tehran, between the northern slopes of the Elburz Mountains and the southwestern shores of the Caspian Sea, lies a lush region known today as Gilan Province. During the 1960s, many ceramic and metal artifacts stemming from illicit excavations of sites in this area made their way to museums and private collections furnished with such labels as "Amlash" and "Ardabil." Beginning in 1961, "Amlash"—a small town in southeastern Gilan Province—gave its name to a wide range of ceramic vessels produced in a variety of wares and shapes, and to a group of human- and animal-shaped vases and figurines (cat. no. 7). A few years later, "Ardabil" emerged as a term that denoted a painted style of ceramic vessels and animal-shaped containers reportedly found near this city in the province of Azerbaijan. Controlled excavations carried out in Gilan, Mazandaran, and Azerbaijan Provinces during the 1960s and 1970s unearthed a large number of burials containing ceramics, metalwork, and other tomb gifts. This information enabled archaeologists to recognize groups of artifacts that had been deposited at the same time and were therefore approximately contemporaneous, and to begin to identify local and regional differences in ceramic shapes, wares, techniques of manufacture, and details of decoration. These excavations thus furnished information essential to the classification of many objects that appeared on the antiquities market without reliable evidence for region of origin, date, or archaeological context. While the labels "Amlash" and "Ardabil" implied a single period or culture, scientific excavations established that the terms in fact disguised a lengthy chronological span, extending from the second millennium B.C. to the early centuries of the common era, and included material



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Cat. no. 7. Beak-spouted jar, Iran, Iron Age I–II (ca. 1400–800 B.C.), earthenware, 17.4 x 37.7. Gift of Osborne and Gratia Hauge, S1998.23

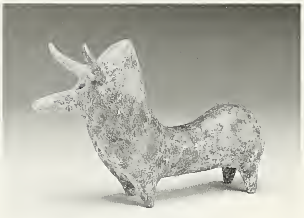
Cat. no. 3. Bowl, Iran, Chalcolithic period (ca. 5500–3000 B.C.), earthenware, 7.7 x 22.3. Gift of Victor and Takako Hauge, S1998.309

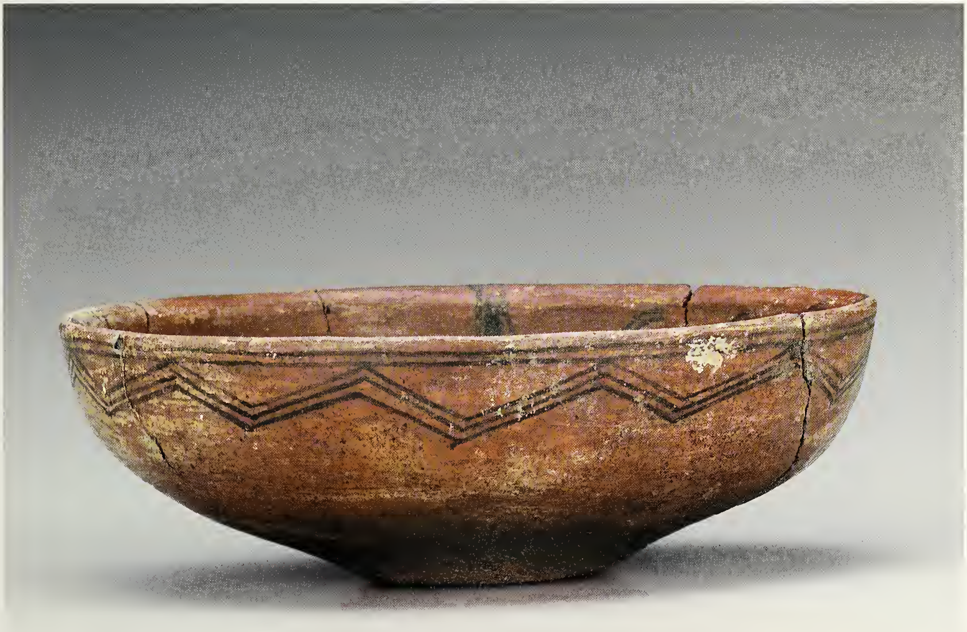
from a considerable geographical range across northern and northwestern Iran.[2]

For the early Iron Age in Gilan Province, dating to the late second and early first millennium B.C., a primary source of information comes from the excavations at Marlik Tepe in 1961 and 1962. Located on the Sefid Rud (White River) near Amlash, Marlik's cemetery of richly furnished tombs—probably the burial grounds of the local political elite—yielded vessels, jewelry, weapons, and other objects made of gold, silver, bronze, ceramic, and glazed material composed chiefly of crushed sand or quartz (commonly known as faience). With the recent publication of the Marlik excavations final report, the great importance of this site and its remarkable finds can be newly appreciated.[3] All of the finds from carefully recorded excavations serve as the basis for assigning a probable date and place of origin for many ceramic artifacts now housed in the Arthur M. Sackler Gallery.[4]

When samples of these early painted styles reached museums and private collections in Europe and the United States, they captured the attention of art historians and collectors alike. Alongside an archaeological interest in ancient Iranian ceramics emerged an aesthetic one, inspired by often remarkably sophisticated geometric ornament and abstract, expressive animal images (cat. no. 3). Subsequently, during the 1950s and 1960s, monochrome burnished wares came to light in large numbers primarily as a result of clandestine excavations in northern and northwestern Iran. Artists, collectors, and art historians admired the simple, elegant shapes and stylized human and animal figures often fashioned in these wares (fig. 1). Because of their aesthetic orientation, collections obtained via the art market prefer fine, decorated wares and seldom indicate the full range of ceramic production in antiquity. Controlled excavations, by contrast, tend to yield vast quantities of cooking pots, storage jars,

FIG. 1. BULL-SHAPED VESSEL, IRAN, IRON AGE I–II (CA. 1400–800 B.C.), EARTHENWARE, 22.2 X 35. ARTHUR M. SACKLER GALLERY, GIFT OF JOAN AND FRANK MOUNT, S1995.128





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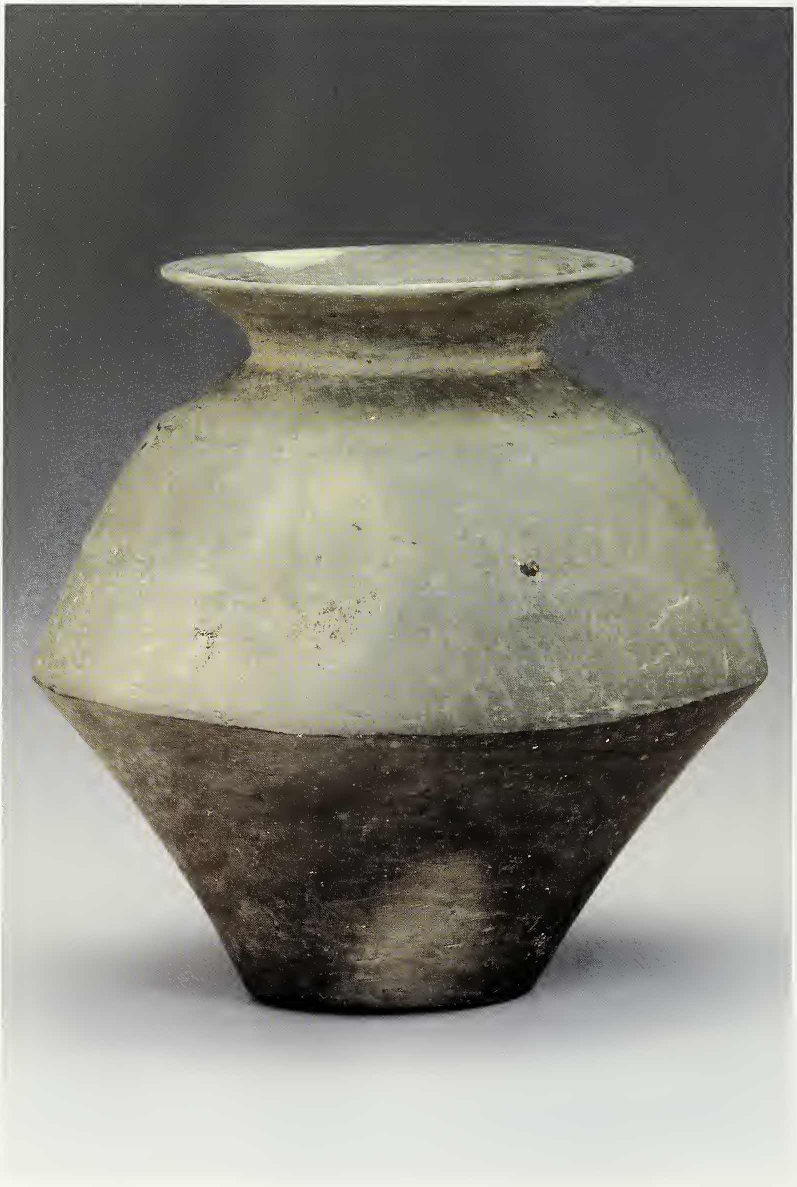

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and other utilitarian vessels, as well as fragmentary and unsuccessfully fired specimens. In addition, they have unearthed evidence for the practice and broader significance of the craft, documenting workplaces and kilns, functions, and contacts with more distant locations.

Historical questions about the identity of the peoples who made these ceramic objects also prompted further interest in them. Inscriptions from northern Mesopotamia established that the Medes and Persians, tribes speaking languages belonging to the Indo-Iranian branch of the Indo-European family, had settled in western and southwestern Iran at least by the ninth century B.C. Large-scale human migrations were assumed to have left signs in the archaeological record. Archaeologists observed that distinctive gray wares appeared at many sites in northern and western Iran dating to the second and early first millennium B.C., while east of the Caspian Sea they were found in earlier contexts, dating to the Bronze Age (circa 3000–1400 B.C.) (cat. no. 4). Peoples speaking ancestral forms of these languages, they reasoned, had migrated slowly westward from their homeland in Central Asia beginning around 2000 B.C. and could be identified archaeologically by their use of monochrome gray wares. By tracking the routes over which these wares traveled across northern and western Iran, archaeologists hoped to reconstruct the path and date by which Indo-Iranian speakers arrived in their new homelands. Today, both archaeologists and historians are far more cautious about equating the ownership or use of ceramic styles with speakers of particular languages or even with broader cultural units.[5] Nevertheless, this concern with ethnic and linguistic identity helped spark interest in excavating, studying, and mapping the distribution of gray wares and other ceramic products at prehistoric sites in Iran.

As with other areas of ancient Southwest Asia, the focus of ceramic studies in Iran has traditionally centered on the visual analysis of complete specimens, preferably of fine, decorated styles. These studies have sought primarily to define ceramic "cultures" or "traditions" in the archaeological record, to establish their relative chronology, and to plot their extent and interaction with neighboring "cultures." In recent years, ceramic studies have embraced a broader mission that includes detailed investigation of manufacture, distribution, function, and interaction with other media and forms of artistic expression.[6]

CAT. NO. 4. JAR, IRAN, LATE BRONZE AGE (CA. 2400–1400 B.C.), EARTHENWARE, 20.4 X 20.5. GIFT OF OSBORNE AND GRATIA HAUGE, S1998.190

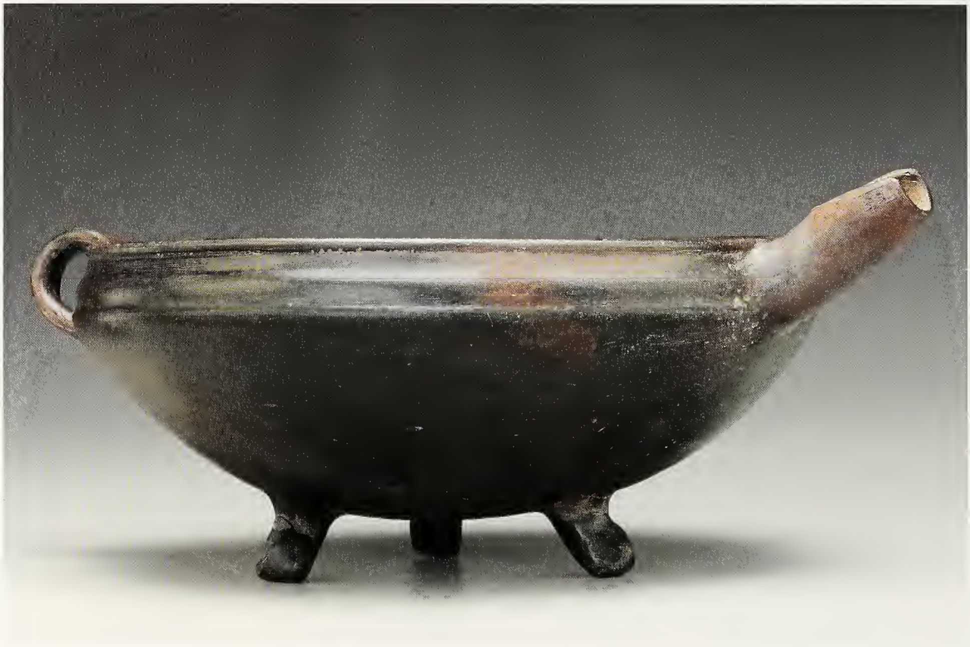
In the absence of ancient texts, the study of surviving objects serves as the basis for reconstructing ancient Iranian ceramic technology. Often the pots themselves furnish detailed clues to the manner in which they were shaped, decorated, and fired. Visual inspection, physical or technical examination involving laboratory equipment, and chemical analysis now offer a wide spectrum of investigative tools. Technical examination has made substantial contributions to identifying and quantifying many of the manufacturing parameters, including clay, temper, pigments, tools, and firing conditions. In addition, technical studies can outline the various processes of shaping, decorating, and firing that enabled potters to achieve desired results.

Archaeological finds and written records from other areas of Southwest Asia may occasionally also assist in filling out a general picture of Iranian technological development or craft practices, but these different cultures cannot be casually interchanged. While it is tempting to draw on the richer textual and archaeological sources from Egypt and Mesopotamia to fill in gaps for Iran, analogies need to be proposed cautiously. Ceramic production, in fact, offers a clear example of cultural expression in which Iran differs signally from its famous neighbors. In Mesopotamia and Egypt, the earliest pottery includes painted styles of great artistic merit, originality, and technical mastery. The pottery of historic periods, however, is overwhelmingly drab and mass-produced.[7] By contrast, Iran produced impressively crafted ceramic artifacts of exceptional visual interest long after the development of technologies capable of rapidly manufacturing vessels of standardized shape and dimensions.

Regional craft traditions may persist over extremely long periods of time and can offer detailed information about past practices. Ceramic ethnoarchaeology, the study of ceramic production and consumption in living societies, has furnished valuable information that might significantly enhance understanding of the circumstances surrounding pottery-making in antiquity. Only a detailed investigation of living societies can yield information on every step involved in ceramic production, from the identification and acquisition of suitable sources of raw materials to the finished object itself and beyond, to mechanisms of distribution and patterns of consumption. In the case of Iran, ethnoarchaeological studies carried out during the 1960s and 1970s serve as a foundation on which new fieldwork can build.[8] Ceramic ethnoarchaeology also investigates the range of options available to potters at every step of production and why particular solutions are chosen. Based on the premise that technology is also stylistic, the study of technological choices augments a notion of style based on visual forms. A technological approach to artifact variability stresses the choices involved in the selection of materials and techniques of production and rejects the notion that technological aspects can be isolated from visual style or artifact function.[9] This perspective emphasizes that technologies result from culturally embedded choices and are not solely the outcome of physical (material) or socioeconomic constraints. In the words of one recent observer, "The choices that artisans make essentially proceed from the social contexts in which they learn and practice their craft."[10]

Many technological choices have a dramatic visual impact. One is the manipulation of firing conditions to achieve dark gray or jet-black surfaces, as illustrated by many pots produced in northern and western Iran in the second and early first millennium B.C. (cat. no. 9). Others, by contrast, may relate to purely technological aspects, involving decisions about materials and techniques that will not noticeably alter the object's appearance. The potters who decorated vessels of Halaf style, the elegant pottery produced in northern Mesopotamia, southeastern Turkey, and Syria in the sixth millennium B.C., created matte brown or red paint by two distinct methods. One used an iron-rich paint fired at a relatively low temperature, possibly under highly specific firing conditions; another used a mineral-rich paint that included iron oxide dust and stain but no alkali flux.[11] In both instances the choices were shaped by cultural considerations at least as much as by technical knowledge.

The collection of ancient Iranian ceramics assembled by the Hauges will play an important role in ongoing investigations of this material. Its extensive chronological scope offers an overview of ceramic achievements spanning some five millennia, from around 5000 B.C. to the early centuries of the common era. While the objects lack recorded archaeological contexts, they can often be compared with ceramic finds recovered from controlled excavations or fragments collected from known sites, thus establishing their probable dates and places of origin. In addition, the high quality and excellent preservation of the vessels render them particularly valuable for elucidating the ceramic craft in ancient Iran. A long-term, multi-



9

Cat. no. 9. Tripod bowl, Iran, Iron Age I–II (ca. 1400–800 b.c.), earthenware, 15.4 x 37.3 x 28.2. Gift of Osborne and Gratia Hauge, S1998.166

disciplinary research project encompassing all of the ancient Iranian ceramics in the Arthur M. Sackler Gallery's collection will undertake a detailed technical study of each object. Ultimately, this project will collect and analyze a significant quantity of new observations concerning the technology of manufacture and decoration, contributing to an aspect of Iranian ceramic history in need of further research.

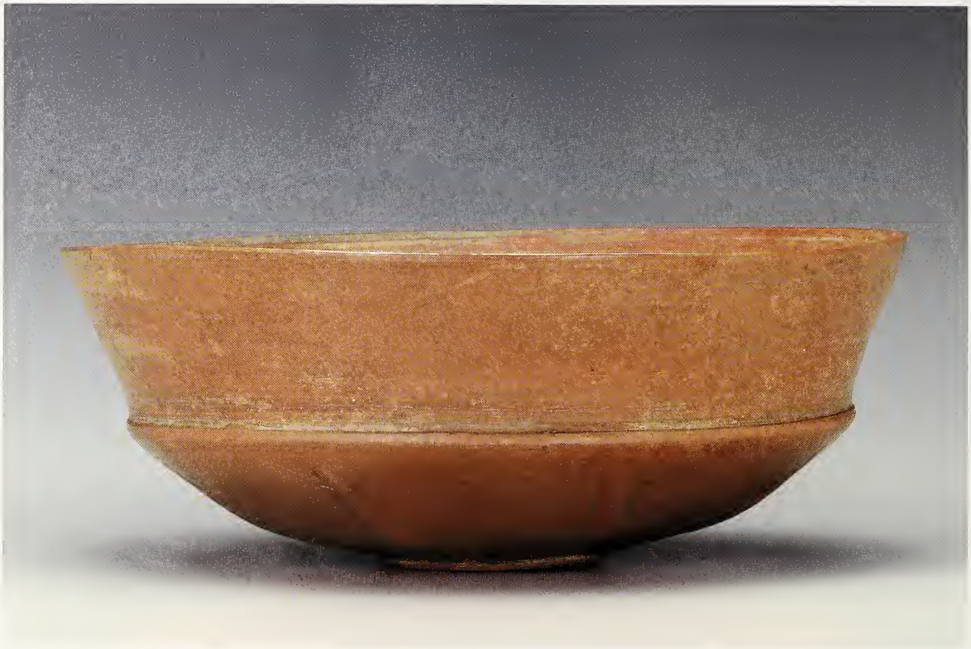
The thirty-three works included here draw special attention to two principal categories: early painted styles chiefly from western Iran, dating to the Chalcolithic period (circa 5500–3000 b.c.) and Bronze Age (circa 3000–1400 b.c.); and painted and monochrome wares produced in northern and western Iran during the Iron Age (circa 1400–300 b.c.). In association, these examples document many of the methods used to shape, decorate, and fire ceramic vessels in ancient Iran. They also contribute to an understanding of the potter's sources of inspiration, the function of ceramic vessels, and the role these vessels played in Iran's interaction in antiquity with broader cultural horizons.

THE POTTER'S CRAFT

Ceramic specialists generally classify as either terra-cotta or earthenware the great majority of ceramic vessels produced in ancient Iran (as well as elsewhere in Southwest Asia). Terra-cotta refers to coarse, highly porous unglazed ceramic material fired at temperatures well below 1000° C. The term earthenware embraces both glazed and unglazed ceramic material fired at comparatively low temperatures (usually between 900 and 1200° C), relatively porous and permeable, and red or brown in color.[12] The natural resources commonly used to make, decorate, and fire both terra-cotta and earthenware—clay, water, fuel, and iron-rich pigments—are abundant throughout most of the region.[13] As a result, pottery-making could be practiced in almost any location.

Clay sources vary naturally in the type and quantity of mineral inclusions they contain, giving potters an opportunity to select those most suited to particular kinds of vessels. Alluvial silt deposited along river banks, for example, provides a readily available source of naturally levigated clay appropriate to fine, thin-walled wares. Forming vessels often required an initial phase of clay preparation, in which potters removed mineral inclusions or perhaps added other materials as temper—often sand, ash, or chaff—to improve texture. Visual inspection sometimes reveals such added material. Vegetal temper such as chaff, straw, or grass, for example, burns thoroughly during the firing process, leaving tiny slits that are visible even to the unaided eye.

The most common method of shaping clay vessels consisted of building them by hand, beginning with a lump, slabs, or coils of clay. Shaping pots by means of throwing, by contrast, requires use of the potter's wheel. To judge by the evidence of the pots themselves, a tournette, or slowly moving wheel, may have been in use in Southwest Asia by about 4500 B.C. Scholars are not certain when the "true" or "fast" wheel was invented. Archaeologists long considered the invention of the fast-rotating wheel to represent a key technological advance in ancient Egypt and Southwest Asia, a hallmark of civilized, urban society, and they correspondingly made a sharp dis-



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CAT. NO. 32. BOWL, IRAN, ACHAEMENID PERIOD (IRON IV, CA. 550–330 B.C.), EARTHENWARE, 8.6 X 22.2. GIFT OF OSBORNE AND GRATIA HAUGE, S1998.197

tinction between handmade and wheelmade pottery. Recent studies suggest, however, that claims for the wheel's significance are probably overstated and oversimplified, and that this broad technological division is not particularly useful in understanding the history of ceramic production in this region of the ancient world. The fast wheel, operated by the potter's foot, did not in any case come into widespread use in Southwest Asia before 1000 B.C.[14] Neither the tournette nor the fast wheel replaced older methods of forming clay pots or precluded the development of new ones. For building extremely large containers, for example, or fashioning vessels in the form of a human or animal figure, a rotating wheel offered only limited assistance. Even in the case of simpler shapes, hand-building remained an important method of shaping vessels well into the Iron Age (circa 1400–300 B.C.), as examination of many ancient Iranian pots bears out (cat. no. 32).

A detailed study of early pottery-making techniques in Southwest Asia and Egypt has demonstrated that slab construction is probably the oldest and most important of all forming methods. The first fired clay vessels in these regions were made of a clay tempered with vegetal fiber, forming a fabric consisting of ground clay combined with chaff, straw, or grass, and sometimes also with sand and water. The texture and physical properties of this mixture suited the building of vessels by means of sequential slab construction. This method entails stacking palm-sized clay slabs on top of one another in particular sequences. Typically, slabs are larger at the base of the pot than in the body, and still smaller at the rim. Sequential slab construction was used to make ceramic vessels found at early farming villages in the Zagros region of northwestern and western Iran, including Hajji Firuz Tepe, Seh Gabi, and Dalma Tepe.[15]

At a slightly later period, perhaps by around 5500 B.C., potters began to temper clay instead with sand or grit. To judge by common practice among potters of living societies, they probably allowed the mixture to age for about two weeks. This alteration in clay preparation resulted in a greater plasticity, which in turn eventually permitted the successful adoption of other, more rapid methods of forming. By the fourth millennium B.C., pots show evidence of other techniques: coil-building, molding in sections, and throwing. But slab-building remained the dominant means of shaping vessels for several millennia following the introduction of new tempering formulas. Molding, another technique employed in shaping pots, is also attested to in Iran as early as the seventh millennium B.C., particularly for making round-bottomed shapes with flaring sides. Molds and stamps were sometimes also used at a later stage in pot-making, to add relief decoration to the exterior of a vessel or other object, for example.

In practice, potters often combined two or more methods in shaping a single vessel, and they continued to do so long after the introduction of throwing techniques. Visual inspection can sometimes reveal that pots were built in preliminary fashion with the aid of a wheel, then finished by hand. As finishing and decorating often obliterate the evidence of earlier phases, however, examination with the unaided eye may not reveal all of the steps involved in construction. Technical study of ancient Iranian vessels made entirely or in part in the shape of an animal helps to document this compound

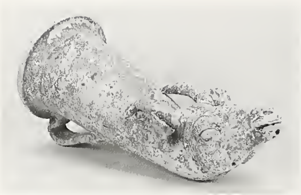


Fig. 2. Drinking vessel with gazelle protome, Iran (?), Achaemenid Period (ca. 550–330 b.c.), earthenware, 28.3 x 18.1. Arthur M. Sackler Gallery, gift of Arthur M. Sackler, s1987.31

approach. Scientists at the Smithsonian's Center for Materials Research and Education used a radiographic imaging technique called xeroradiography to examine the construction of a ceramic drinking vessel with a protome (forepart) in the form of a gazelle's head (fig. 2). They were able to determine that the beaker portion of the vessel was built using strips or coils of clay, whereas the animal's head was modeled by hand. This study also makes a valuable contribution to understanding the cultural dimension of technological choice. The potters could, for example, have opted to throw the beaker portion and fashion the animal-shaped forepart with the aid of a mold (such techniques were employed by Greek potters in the fifth century b.c. for many adaptations of the Iranian animal-shaped drinking cup).[16] At the British Museum, xeroradiography demonstrated slab construction for a bull-shaped vessel similar to an example in the Arthur M. Sackler Gallery's collection (fig. 1).[17] Such studies offer further evidence that pottery-making practices in Iran, as elsewhere in Southwest Asia, were deeply rooted cultural traditions that often persisted for millennia.

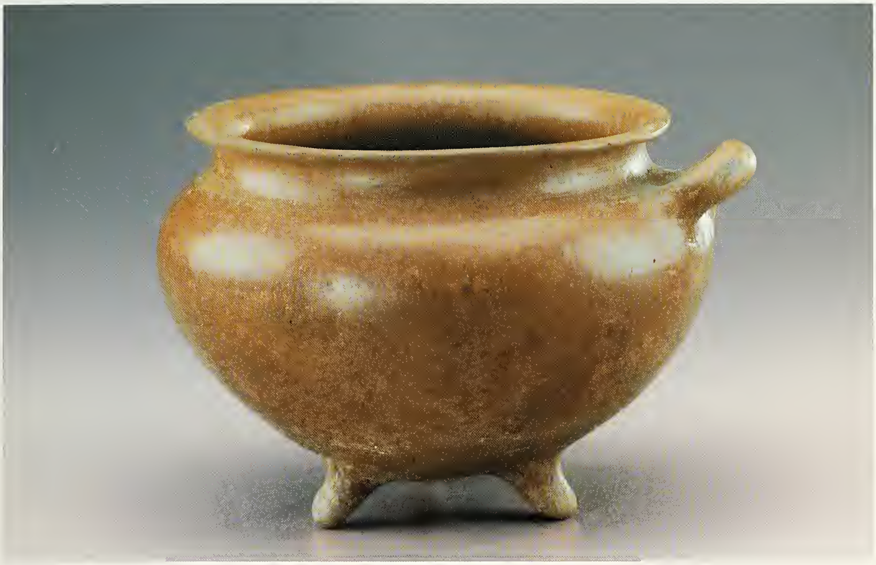
Finishing the pot frequently involved careful smoothing to create a fine, regular surface. Potters used a wet cloth or wet hands to dampen the surface sufficiently to achieve this goal. Finishing was also accomplished by scraping, an often time-consuming procedure used to thin and even out the walls of the vessels and remove any imperfections remaining on the surface. Scrape marks occasionally remain visible, usually on the interior surface. Many fine, hand-built pots from ancient Iran are so skillfully finished that the walls appear to be of perfectly even thickness.

Both functional and nonfunctional appendages made from specially modeled or perhaps molded pieces of clay—handles, spouts, lugs, and feet—were most likely added in the final stages of construction (cat. no. 16). This was probably also the case for more decorative or ornamental features and figures, including those shaped like animals (cat. no. 19).

Cat. no. 16. Tripod bowl, Iran, Iron Age I–II (ca. 1400–800 b.c.), earthenware, 17.3 x 26.0 x 24.7. Gift of Osborne and Gratia Hauge, s1998.196

Cat. no. 19. Zoomorphic vessel, Iran, Iron Age I–II (ca. 1400–800 b.c.), earthenware, 19.4 x 27.2 x 14.3. Gift of Osborne and Gratia Hauge, s1998.206

Finishing primarily involves processes that contribute a decorative effect. In ancient Iran, one of the most important of these was burnishing, or smoothing the surface of the pot with a simple tool such as a pebble when the vessel is dry and leather-hard. In addition to its desired decorative effects, burnishing compacted the surface of the vessel and made it less permeable. Burnishing marks, consisting



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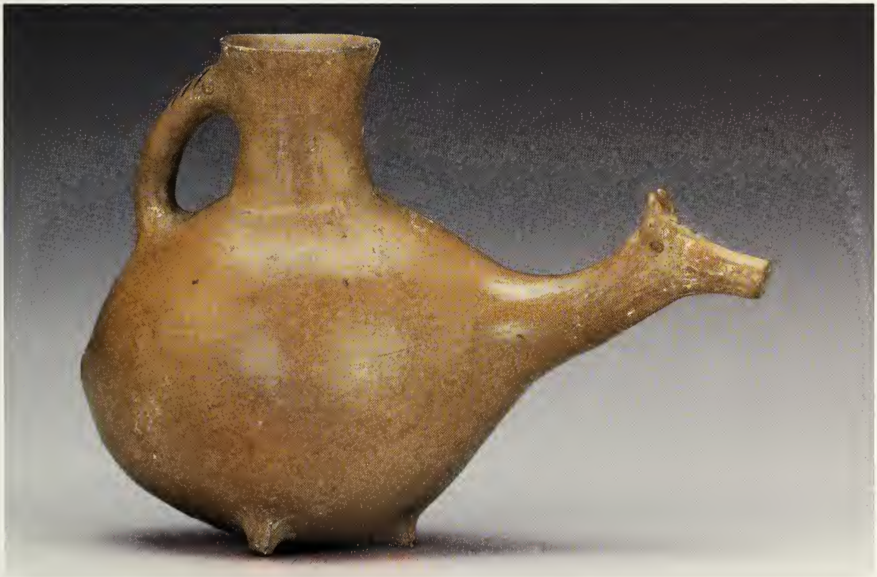

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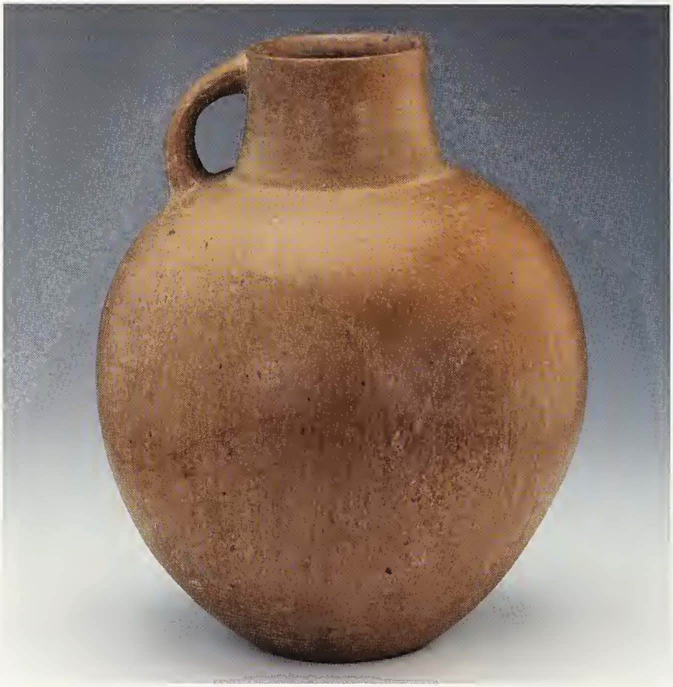

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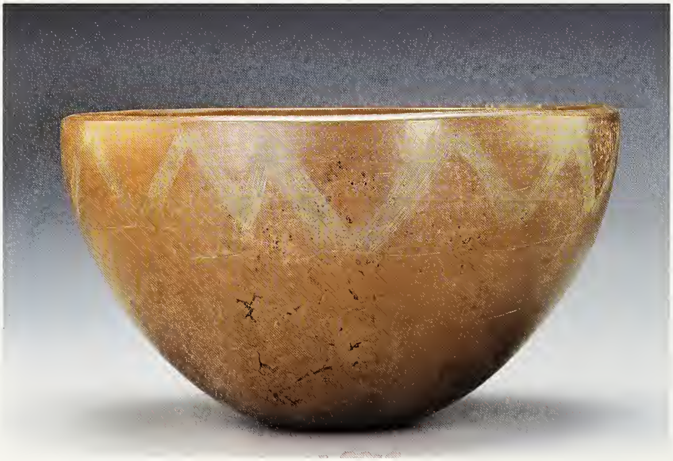

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of parallel facets, are frequently visible; those that are extremely regular and parallel suggest that the burnishing tool was applied while the pot was rotating mechanically. Burnishing could also be directed across the pot to form intentional oblique, spiral, or crosshatched patterns composed of alternating lustrous (burnished) and matte (unburnished) lines (cat. no. 8). Incising patterns into the surface of a pot was probably also accomplished at the finishing stage, before the vessel had been allowed to dry thoroughly (cat. no. 6). Potters created a newly damp surface by smoothing the pot with wet hands or a cloth, then formed patterns by incising with a sharp tool.

Once shaped and finished, a pot was gradually dried in the sun until it became leather-hard, a process that could take days or even weeks to complete. At this stage, it could be decorated on one or both surfaces through a variety of techniques. Additions to the surface include appliqués, or small, shaped pieces such as pellets (fig. 3). Incising, burnishing, slipping, and painting were the most common methods of decorating ceramic vessels in ancient Iran.[18] In ancient Iran, as in other areas of Southwest Asia, surfaces of pots were frequently covered with slip, a fluid suspension of clay in water that is applied before firing to produce a thin coating. Made from red clay containing iron-rich pigments, slips produced red, red-brown, or black surfaces, depending on firing conditions. Often the slip was burnished before firing to produce a glossy surface. Some of the most elegant and widely admired ancient Iranian ceramics were decorated solely by slipping and burnishing, resulting in a smooth, richly colored, lustrous surface.

Another common decorative technique consisted of painting patterns on selected areas of the exterior surface. Fine, clean clay, when colored with iron-rich pigments, produces red, brown, or black paint, which was applied with a small brush, often in contrasting colors, usually to a slipped surface (cat. nos. 2, 3). Pot decoration, of course, called not only for a potter's knowledge of materials and techniques, but also of local or regional traditions that are often extremely complex. Among the best known and most prized of ancient Iranian ceramics are styles painted with geometric or figural decoration, typically in one of two color schemes: black on a red ground, and brown or red on a pale, buff ground. In the most successful products of the painted styles, the artisan achieved an almost perfect dynamic correspondence between shape and decoration.

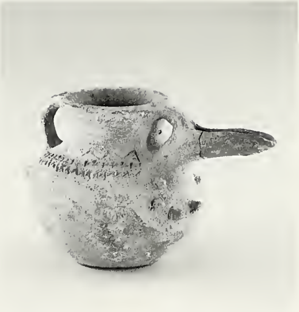
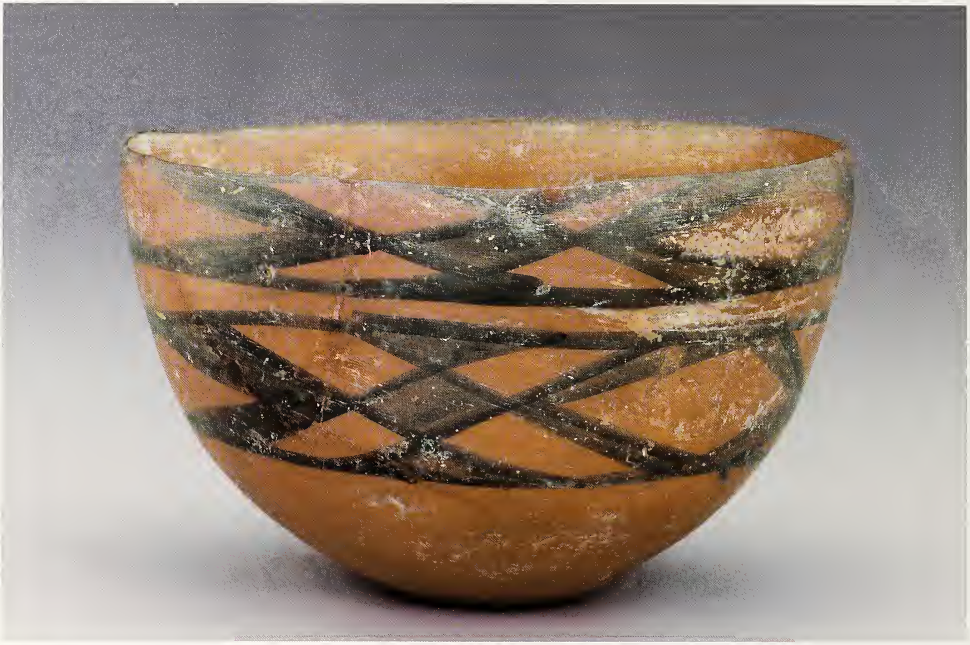


Fig. 3. Spouted jar, Iran, Iron Age II (ca. 1000–800 b.c.), earthenware, 18.3 x 11. Arthur M. Sackler Gallery, gift of Kathryn and Clarence Kubichek in memory of Gladys Scott, s1997.5

Cat. no. 8. Jug, Iran, Iron Age I–II (ca. 1400–800 b.c.), Earthenware, 36.1 x 29.0. Gift of Osborne and Gratia Hauge, s1998.24

Cat. no. 6. Bowl, Iran, Iron Age I (ca. 1400–1000 b.c.), Earthenware, 19.2 x 34.2. Gift of Osborne and Gratia Hauge, s1998.174



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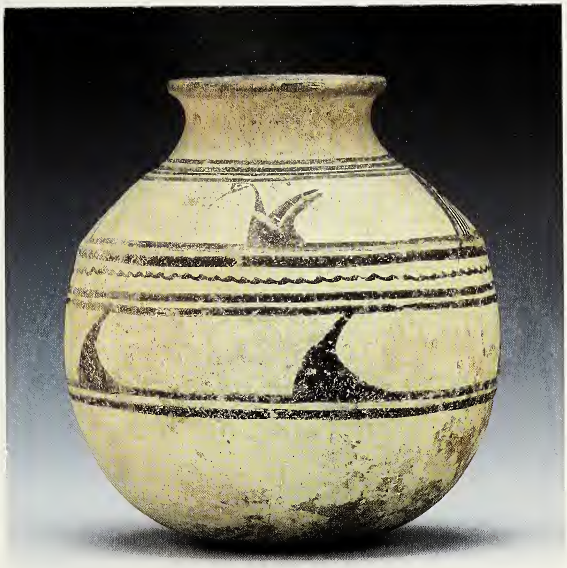
Cat. no. 2. Bowl, Iran, Chalcolithic period (ca. 5500–3000 b.c.), earthenware, 12.9 x 20.0. Gift of Osborne and Gratia Hauge, s1998.184

Cat. no. 5. Jar, Iran, Late Bronze Age (ca. 2400–1400 b.c.), earthenware, 23.4 x 21.7. Gift of Osborne and Gratia Hauge, s1998.21

Cat. no. 29. Jar, Iran, Iron Age II–III (ca. 1000–600 b.c.), earthenware, 30.4 x 31.2. Gift of Osborne and Gratia Hauge, s1998.22

Around 2000 b.c., wares decorated in brown paint on a light ground enjoyed considerable popularity in western Iran, especially in the areas of modern Luristan and Kurdistan. Examples of this style, often termed "Buff Painted Ware," have been excavated from tombs and habitation areas at several sites, most notably Tepe Giyan and Godin Tepe. Preferred shapes include globular jars made in generous sizes. One such jar in the Hauge collection bears surface decoration in a matte beige slip punctuated at rim and shoulder with dark brown painted zones (cat. no. 5). Its ornament consists of several motifs characteristic of this style: water birds executed in silhouette, with eyes in outline; stacked chevrons; and a flame ornament in silhouette. Concentric zones of decoration encircle the rim and body, carrying the eye around the vessel and emphasizing its volume. The placement of the repeated motifs varies from register to register, thereby avoiding a static, vertical stacking of patterns. Animate forms



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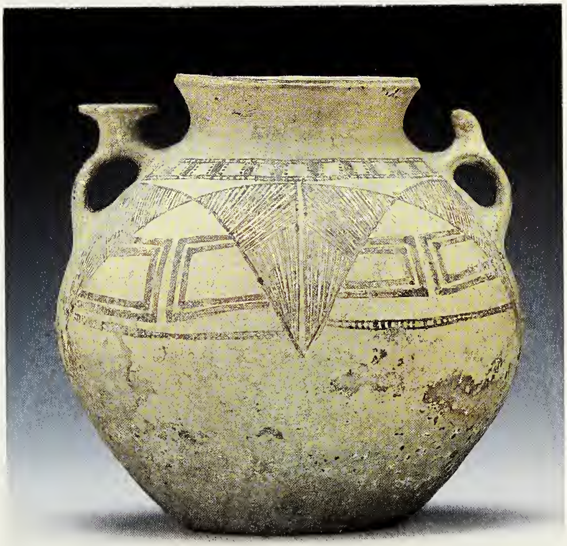

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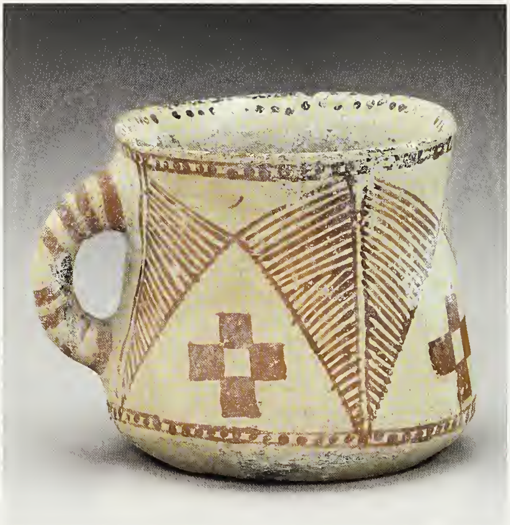

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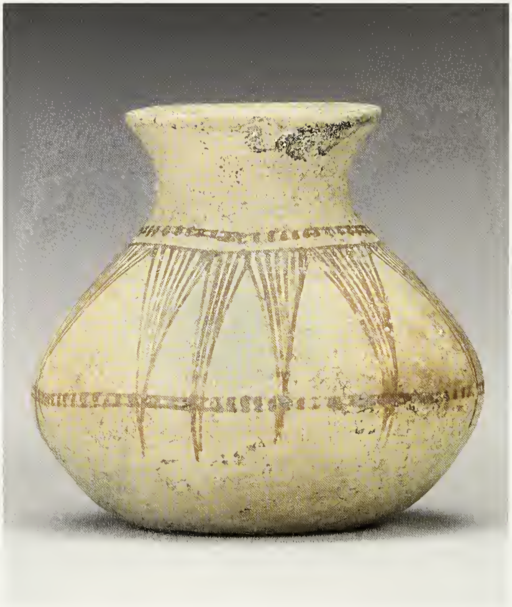

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also give the illusion of movement; on this jar, the highly schematic birds appear to be taking flight from the surface of the water.

Red- or brown-on-beige painted wares were also popular in western Iran during the subsequent Iron Age (circa 1400–300 B.C.). Cemeteries and settlements in the Luristan region have yielded examples of a distinctive painted style dating to the Iron II–III period (circa 1000–600 B.C.). Often called "Genre Luristan," this pottery is also known as "Baba Jan III Painted Ware" after Baba Jan Tepe, a large settlement where it was extensively excavated during the 1960s. Handmade and fired to a buff or light brown color, many pots were left plain or embellished with appliqué (fig. 3). Others show signs of light burnishing prior to decoration with designs in dark brown or reddish brown paint.[19] Three handsome specimens of Genre Luristan in the Hauge collection illustrate characteristic shapes and decoration. Painted ornament in brown or red typically consists of a few recurring motifs, including hatched "kites" (as here), arranged in a zone across the upper half of the vessel (cat. no. 29). The asymmetrical design of the handles exemplifies the often-whimsical approach to ceramic decoration in ancient Iran. One handle is stirrup-shaped; the other takes the form of a small quadruped that appears to climb up the shoulder toward the rim. A jar painted in reddish brown with multiple bands in a radiating pattern effectively echoes the swelling volume of the vessel (cat. no. 31). A third example of Genre Luristan is a cup painted with characteristic ornaments, including hatched "kites" and short horizontal bands on the handle (cat. no. 30).

Beginning around 1500 B.C., potters in Southwest Asia began to achieve new surface colors by means of glazing. This required the modification of formulas for making glass so that the material would adhere to a clay body. The characteristic glazes of this region belong to the group called alkaline, meaning that the principal flux in the glaze is an alkali such as a hydrate of potassium or sodium. Glazed pottery was especially common in the Parthian (circa 250 B.C.–A.D. 224) and Sasanian (circa 224–651) periods in Mesopotamia and Iran. Blue and green, the favored colors of glazes for applying to ceramic vessels, result from the presence of minor amounts of copper oxide.[20]

Firing was the final stage in pottery-making. Baking pots to a high temperature improved both durability and impermeability, and it also offered another set of decorative opportunities through changes in surface color. As with the development of shaping techniques,

CAT. NO. 30. CUP, IRAN, IRON AGE II–III (CA. 1000–600 B.C.), EARTHENWARE, 9.7 X 12.8 X 10.7. GIFT OF VICTOR AND TAKAKO HAUGE, S1998.312

CAT. NO. 31. JAR, IRAN, IRON AGE II–III (CA. 1000–600 B.C.), EARTHENWARE, 11.1 X 12.2. GIFT OF VICTOR AND TAKAKO HAUGE, S1998.313

archaeologists long assumed that firing methods progressed from primitive to sophisticated, and that only one method prevailed at any given time. Excavation and analysis of kiln installations at several archaeological sites in Iran and elsewhere in Southwest Asia, together with evidence from ethnoarchaeological studies, establish that both simple and complex methods were often in use simultaneously.[21]

The simplest and probably earliest method of firing consisted of heating the vessels on a hearth or in an open pit or bonfire. Straw, brush, or dung cakes covered a stack of dried vessels to form a dome over the pots and maintain a high temperature. Structures specially built to function as kilns have been preserved, identified, and studied at relatively few ancient sites in this area of the world, although they were probably common features in villages as well as in larger population centers. Two examples of the type called an updraft kiln, dated to around 6000 B.C., have been excavated at Yarim Tepe I, a site of the Hassuna culture of northern Iraq. Still in use in Southwest Asia, this type consists of a cylinder about two meters high built of fired mudbrick, with an interior diameter of about two meters. Below the surface is a firebox, which the potter feeds from a fuel source in an open pit next to the kiln. At about ground level, a hearth perforated with flue holes allows flames and hot gases to rise from the fuel into the cylindrical firing chamber where the pots have been stacked.[22] Temperatures inside the firing chamber of simple updraft kilns can reach up to 1000° C.

Another type of kiln dating only slightly later than the ones at Yarim Tepe has been excavated in southwestern Iran at the site of Jaffarabad, near Susa. Here, a double-chamber vertical downdraft kiln, consisting of a below-ground firebox lined with plastered bricks, a sloping stoke-hole, and a grate, dates to the end of the seventh millennium B.C.[23] This type differs from updraft kilns in the relationship between the vessels to be fired and the movement of the heat. In an updraft kiln the heat moves upward through the load of pots to be fired; in a downdraft kiln, by contrast, the heat is deflected from direct contact with the pots and forced to travel upward. It then passes through the chamber that holds the pots and is vented outward through an exterior chimney, which also provides most of the draft.[24] Elsewhere in Khuzistan, kilns have been found at Chogha Mish and at Haft Tepe.[25]

Firing conditions can range widely in the rate at which the temperature rises and in the maximum temperature attained. In addition, the atmosphere within the kiln can vary significantly. If the fuel burns cleanly and there is a good draft, all the carbon in the fuel is being burnt (that is, converted to carbon dioxide), and a surplus of oxygen remains in the kiln atmosphere, it is known as an oxidizing atmosphere. If, on the contrary, the fuel is damp or the air supply to the kiln is intentionally restricted, the fire burns with a sooty flame. Some of the metallic oxides in the wares may be reduced, that is, lose part or all of the oxygen they contain. This atmosphere is described as a reducing atmosphere.[26] Simple firing conditions, in hearths or bonfires, for example, would permit a limited degree of control over these conditions, but potters in ancient Iran often obtained quite evenly fired wares by creating either oxidizing or reducing atmospheres. In the second and early first millennium B.C., potters in northern and northwestern Iran deliberately manipulated firing conditions to achieve a reducing atmosphere, resulting in dark gray and black surfaces (cat. nos. 9 and 13).

The organization and scale of ceramic production in ancient Iran must have ranged widely, from the level sufficient for the needs of a small village (or perhaps even an individual household) to a level adequate for an urban palace or temple workshop. Although the particular details of production must have differed considerably from period to period, throughout the various regions within Iran very little documentation is available. For most of ancient Iranian history, basic facts about the practice of pottery-making remain unknown. Were potters male or female, or both? Did they pursue their craft as a full-time, specialized occupation, and did they work seasonally or year-round? How, where, by whom, and at what age were they trained? Ethnoarchaeological studies, as well as the pots themselves, offer several clues.

Observations on the potter's craft made by anthropologists during fieldwork in traditional societies may help to reconstruct the circumstances surrounding the earliest phases of pottery-making and of rural production throughout most of antiquity. Often, according to research by Carol Kramer and others, pottery-making is carried out at the household level in residential areas and involves men, women, and children in a variety of tasks. In rural settings, potters typically make and fire pots close to home; in urban centers, by contrast, potters may work close to home but fire pots at more distant

Cat. no. 20. Cup, Iran, Iron Age I–II (ca. 1400–800 b.c.), earthenware, 9.8 x 12.9 x 12.0 Gift of Victor and Takako Hauge, s1998.316

Cat. no. 21. Cup, Iran, Iron Age I–II (ca. 1400–800 b.c.), earthenware, 10.3 x 14.4 x 13.0. Gift of Victor and Takako Hauge, s1998.317

Cat. no. 26. Jar, Iran, Iron Age II (ca. 1000–800 b.c.), earthenware, 12.8 x 12.6, Gift of Victor and Takako Hauge, s1998.328

Cat. no. 27. Jar, Iran, Iron Age II (1000–800 b.c.), earthenware, 15.7 x 15.2. Gift of Victor and Takako Hauge, s1998.329

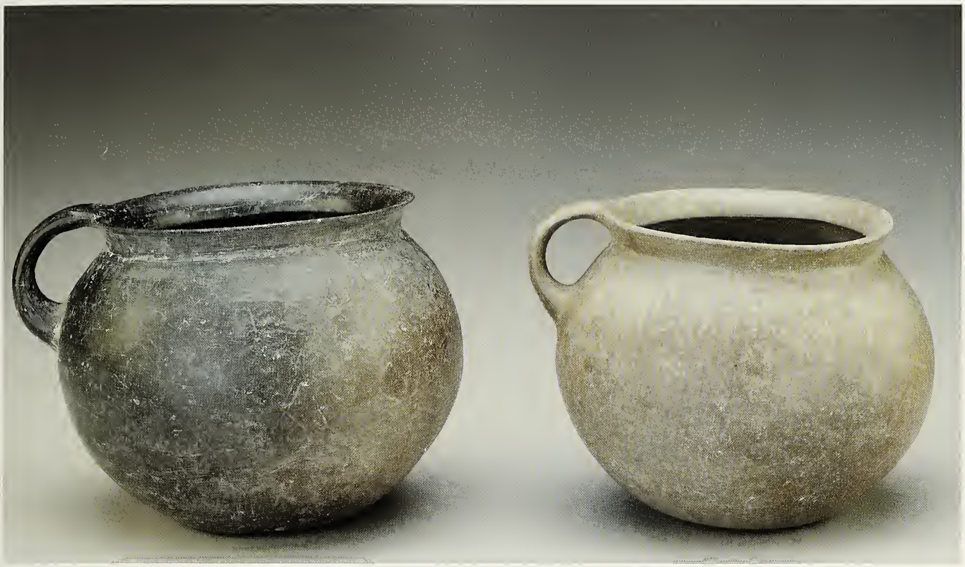
Cat. no. 28. Jar, Iran, Iron Age II (ca. 1000–800 b.c.), earthenware, 18.4 x 18.5. Gift of Victor and Takako Hauge, s1998.330

locations (although not always outside the town or city limits). In these traditional societies, potting is a seasonal occupation, carried out in conjunction with agricultural tasks which cluster at particular times of the year.[27] The distinction archaeologists have often drawn between "full-time" and "part-time," therefore, may have had little meaning in antiquity.

A narrowly defined repertory of vessel shapes and techniques of forming, decorating, and firing pots perhaps suggests a small number of workshops working in close association or for a highly circumscribed market. Potters working alone, as well as those organized in workshops, probably often did undertake individual commissions in the case of items required for special circumstances, such as burial. Occasionally pots survive in pairs or sets, indicating manufacture in a single workshop or even by the same individual. Two deep cups, virtual twins in shape, dimensions, and surface treatment, provide a possible example (cat. nos. 20, 21). Similarly, three jars suggest a set of graduated sizes, made at the same time (cat. nos. 26–28). Nearly identical in overall form, proportions, and surface treatment, they likewise imply the work of a single artisan.

Regionally specific traditions in ceramic production and distribution prevailed in Iran until around 600 b.c. Thereafter, archaeologists have observed a greater standardization of wares and shapes over considerably greater areas, a development plausibly attributed to the effects of imperial organization. During the seventh century b.c., the Medes, a tribe centered near modern Hamadan that spoke an Iranian language, consolidated power and began a territorial expansion. At sites like Baba Jan Tepe, a mostly wheelmade ceramic repertory, left plain or occasionally red-slipped, replaced Genre Luristan pottery. Vessels are of local clays, either naturally containing mica or shale inclusions or intentionally tempered with these materials. Around 550 b.c., the Achaemenid Persian Cyrus the Great (reigned 559–530 b.c.) conquered the Medes and established the Achaemenid Persian Empire, which later extended from northern Greece to the Indus Valley. During the period of Achaemenid rule, which corresponds in archaeological terms in Iran to Iron IV (circa 600–300 b.c.), a widespread homogeneity of shapes, manufacturing techniques, and decorative treatments again characterizes ceramic production.[28]

Even in pre- or nonimperial settings, however, many aspects



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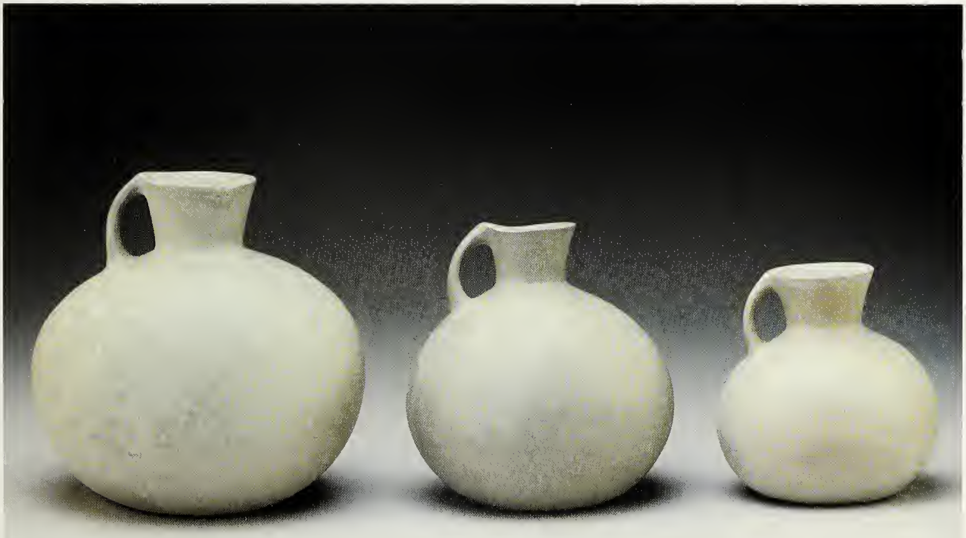

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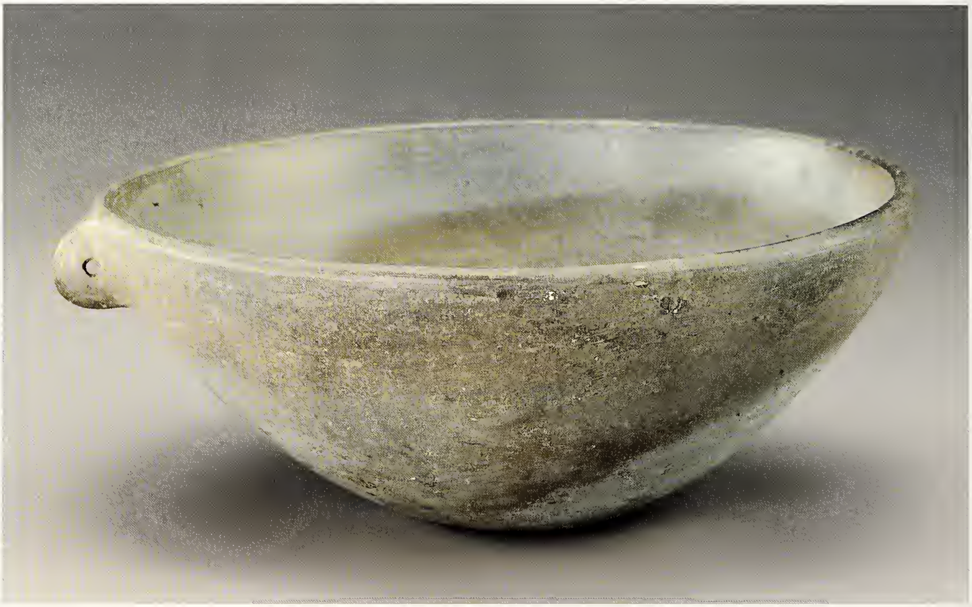
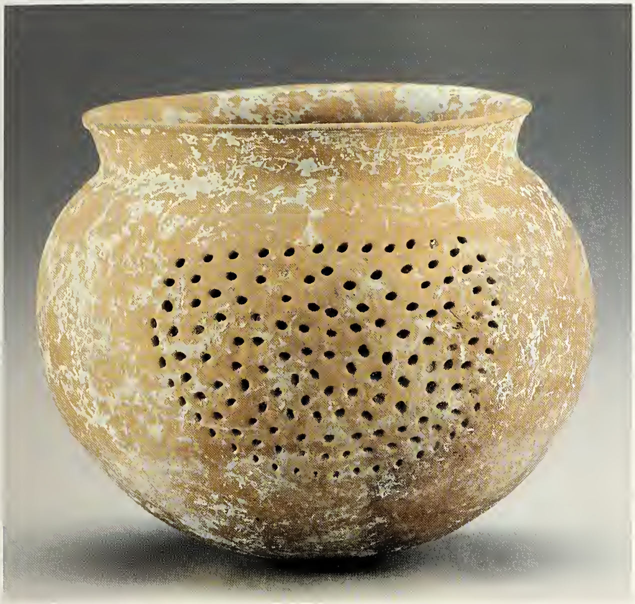


17

Cat. no. 17. Bowl, Iran, Iron Age I–II (ca. 1400–800 b.c.), earthenware, 11.6 x 29.5 x 28.2. Gift of Osborne and Gratia Hauge, s1998.200

of ceramic production and the dynamics of local taste and regional tradition remain poorly understood. The ceramic assemblages recovered from two neighboring, contemporaneous early Iron Age sites in Azerbaijan Province, northwestern Iran, provide a good example (compare cat. nos. 9 and 17). In Level V at the site of Hasanlu (Iron I, circa 1400–1000 b.c.), excavators unearthed jars, pitchers, and bowls fired to dark gray or black. Altogether, these dark wares compose about ninety percent of all vessels from this period. Yet, only about ten kilometers away at the site of Dinkha Tepe, potters produced the same shapes but only about two-thirds of them were dark gray or black; one-third consisted of red and buff wares. By the following period, Iron II (circa 1000–800 b.c.), the percentage of light wares at Dinkha Tepe had increased still further, comprising three-quarters of all ceramic vessels. Perhaps the differences in surface color resulted solely from dissimilar firing practices: at Dinkha Tepe, blotched and unevenly colored surfaces suggest the use of open fires rather than specially built kilns.[29] In any case, the reasons for these


18

diverse technological choices surely also involved social or cultural circumstances highly specific to each settlement.

Cat. no. 18. Sieve, Iran, Iron Age I–II (ca. 1400–800 b.c.), earthenware, 11.2 x 13.5. Gift of Osborne and Gratia Hauge, s1998.204

FUNCTIONS

Ancient Iranian ceramic vessels were used to store, transport, and serve food and drink. Most of the bowls, cups, jars, and other common shapes that persist for millennia, and recur at nearly every site, could have fulfilled these basic purposes. On archaeological sites, pots typically abound in domestic contexts, thus reflecting this key function. Occasionally, certain shapes or features suggest more specialized roles in preparing or serving food. Wide-mouthed vessels perforated on one side may be correctly identified as sieves, but their presence in burials serves as a reminder that similarities with modern implements or containers might not always reveal strictly parallel functions (cat. no. 18).[30] Thin-walled bowls dating to the Iron IV period (circa 600–300 b.c.), the era of the Achaemenid Persian Empire, were used for drinking wine (cat. nos 32, 33). They are exact copies of prototypes in gold and silver, whose function as drinking bowls is firmly established by texts and ancient representations on wall paintings, painted vases, and sculptures.

Early evidence for highly specialized pot function has recently emerged from analysis of large earthenware jars excavated in western Iran at the site of Godin Tepe, located between Kermanshah and Hamadan. Here, large, handleless jars with appliqué rope decoration on one side, dating to Period V (circa 3500–2900 B.C.), sometimes contain red deposits on the interior, both at the base and on the side opposite the decoration. Scientists at the University of Pennsylvania's Museum Applied Science Center for Archaeology employed infrared spectroscopy to analyze the deposits and found tartaric acid, a grape product. Archaeological and chemical evidence in combination suggests that the jars, known as amphorae, were used to store wine, resting on their sides in order to keep the clay stoppers moist.[31] For actual transport, however, wine was probably poured into skins, a practice that seems to have remained normal as long as several millennia later in the eastern Mediterranean region.[32]

Many pots have also been recovered from burials, where they were commonly deposited with the deceased presumably to serve as food containers in the afterlife. The large cemeteries of northern and western Iran dating from the second and early first millennium B.C., at Tepe Sialk near Kashan, for example, and in Gilan and Mazandaran Provinces, have yielded many fine examples of painted and monochrome wares. Often these come from tombs that are also richly equipped with metalwork and other costly items.[33] Clay vessels were not confined to elaborate or elite burials, however. Even the simplest of inhumation burials was normally furnished with one or more clay pots. Cultures that practiced cremation sometimes placed the ashes of the deceased in ceramic jars, and these may comprise shapes or decorative treatments specifically for funerary use. Occasionally, ceramic vessels buried with the deceased seem to have been fashioned exclusively for placement in the tomb. One of the most characteristic ceramic forms associated with the label "Amlash" is a hollow vessel fashioned in the form of an animal. Both scientific excavations and the antiquities market have brought to light many examples made in the shape of rams, mules, and other species. A humped bull, or zebu, of reddish brown clay, is equipped with crescent-shaped horns, ears, stubby legs, and a muzzle that projects as a beaklike spout (fig. 1). Hollow vessels in the form of a humped bull with pouring spout were one of the most characteristic ceramic objects found in the cemetery at Marlik. Sometimes these occurred in pairs or even multiples within a single tomb; one tomb contained five ceramic bulls.[34] The large number of such vessels indicates the importance of the zebu to the region, as does its repeated occurrence in objects made of more costly materials, such as bronze. Small bronze figurines in the form of humped bulls were often pierced or furnished with a small loop for suspension, perhaps for wearing as amulets.[35] Since portable metal versions that could have served amuletic purposes were therefore available, the large, hollow ceramic bulls probably served a different, presumably ritual, function, one that required the pouring of liquids. Given the popularity of this vessel in the Marlik cemetery, it seems likely that they played a part in funerary ritual.[36]

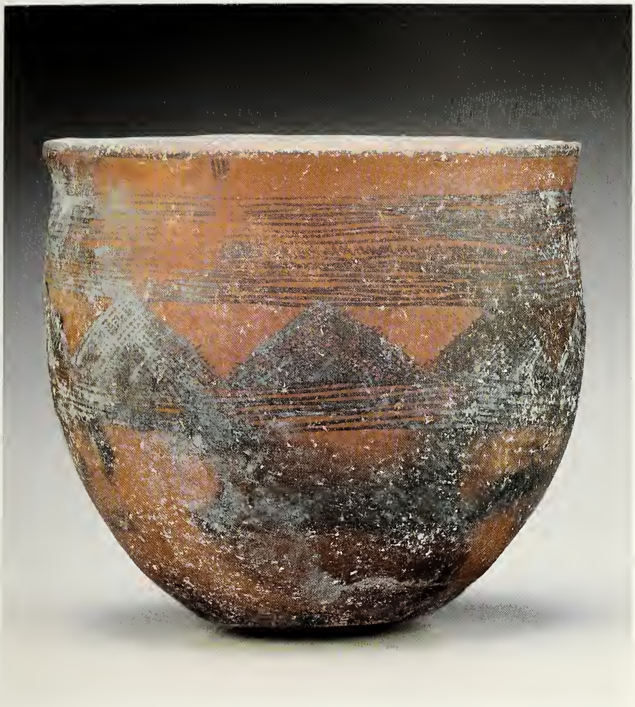
The possible funerary function of the bull vessels raises the question of the purpose and meaning of other ceramic vessels from the Iron I–II periods in northern Iran. A tall, ovoid version of the beak-spouted jars prompted the excavator of Marlik's tombs to wonder whether the shape would have been practical for everyday use. The long spout and tall body, he observed, yield an elegant but unstable shape, and he suggested that these vessels may have been manufactured exclusively for funerary use.[37] Other shapes in the early Iron Age repertory attested in the Marlik cemetery are likewise unstable and impractical, such as joined twin juglets and elegant beak-spouted vessels (cat. no. 7). Determining the function of these vessels is difficult even when they come from a known archaeological context because they have been recovered almost exclusively from burials; the ceramic repertory of contemporaneous households is therefore unknown. Perhaps the objects were buried with their owners simply because they were prized personal possessions. It seems entirely likely, however, that some of the vessels were employed in burial rituals or had explicit funerary associations. Many are intact or otherwise show little, if any, signs of use, suggesting that they were manufactured specifically for depositing in burials. They may also have served in rituals that preceded the closing of the tomb, perhaps held by participants or supported by stands.

Technical study of the ceramic drinking vessel with a gazelle's head protome also raises the intriguing issue of intended versus actual function (fig. 2). Animal-shaped drinking vessels form a well-known and long-lived ceramic category in ancient Iran. This particular example was fired at such a low temperature, however, that the body is permeable to liquids.[38] Could the artisan's sculptural abilities have outstripped his or her technical competence, as the researchers suggest? Perhaps the vessel was required to hold liquid for such a brief period that in practice its permeability did not pose a serious obstacle. Or, again, perhaps the vessel served an exclusively symbolic or ceremonial use, and was never intended to hold liquids.

SOURCES OF INSPIRATION

Initially, potters must have copied shapes of vessels fashioned in materials that boasted still older craft histories: stone, wood, leather, and basketry. Although organic materials seldom survive at archaeological sites in the climate of western and northern Iran, distinctive features of shape or decoration preserved in more durable media may occasionally disclose their origin in rare or easily perishable materials. Archaeologists call this phenomenon "skeuomorphism," which is the manufacture of objects in one material intended to evoke the appearance of objects regularly made in another. The archaeologist V. Gordon Childe suggested that the study of this phenomenon could offer important insights into artistic media for which direct evidence is no longer preserved.[39] Ancient Iranian ceramics offer ample opportunities to observe instances of skeuomorphism.

The surface treatment of some of the earliest ceramic vessels suggests that potters intended to reproduce the veining of fine stone vessels. Patterns woven into baskets may lie behind the ornament on certain styles of painted Chalcolithic wares, such as Cheshmeh Ali pottery (cat. no. 1). Similarly, decorated textiles may have inspired ornamental patterns introduced in colored paint to the surfaces of clay vessels. At the site of Baba Jan Tepe in western Iran, large ceramic ceiling tiles painted in red on a light ground decorated an interior room in the "manor house" contemporaneous with Genre Luristan painted ware featuring the same color scheme (circa 1000–600 B.C.). Curiously, the complex designs of the tiles parallel those on painted clay vessels not from Baba Jan Tepe itself, but



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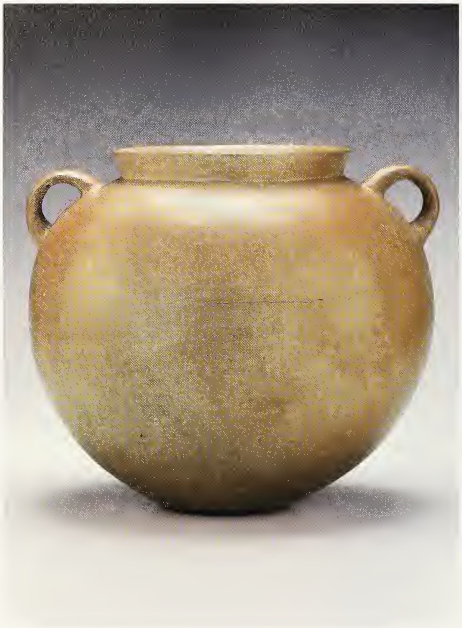
Cat. no. 1. Jar, Iran, Chalcolithic period (ca. 5500–3000 b.c.), earthenware, 30.6 x 33.4. Gift of Osborne and Gratia Hauge, S1998.161

among elaborately painted vessels from the site of Tepe Sialk, located about one hundred kilometers away. Only a few simple ornaments, such as rosettes, connect the tiles with the painted decoration of contemporaneous local pots. Scholars have plausibly proposed that the similarities point to a common source in textile patterns, although this does not entirely explain why the Genre Luristan vessels display a significantly different repertory of motifs. Hatched "kites," crosses, and other patterns that occur on the local vessels at Baba Jan Tepe likewise suggest influence from textile decoration, perhaps embroidery, weaving, or appliqué.[40]

The beginnings of metallurgy must have wrought a dramatic change in ceramic production, another craft that drew on advances in pyrotechnology. From its inception, the scarcity of metal sources



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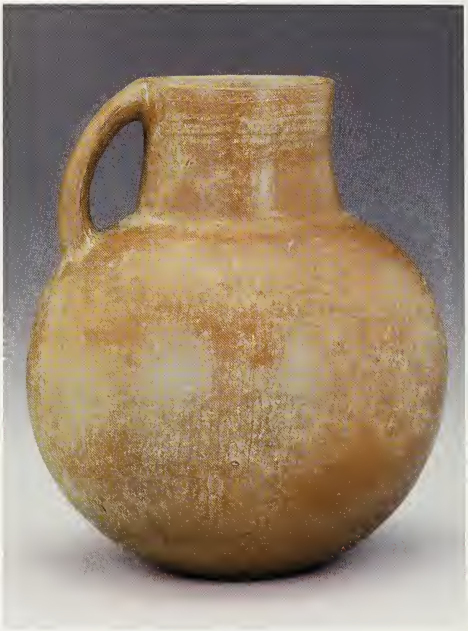

15

Cat. no. 14. Jar, Iran, Iron Age I–II (ca. 1400–800 b.c.), earthenware, 26.8 x 31.2 x 31.0. Gift of Osborne and Gratia Hauge, s1998.194

Cat. no. 15. Jug, Iran, Iron Age I–II (ca. 1400–800 b.c.), earthenware, 23.9 x 20.4. Gift of Osborne and Gratia Hauge, s1998.195

and the complex steps involved in smelting ores and producing artifacts made of copper, silver, and gold no doubt established metallurgy as an elite technology. Metal, in turn, became the most prestigious material for many objects, including vessels. A source of inspiration in metalwork can sometimes also be deduced from distinctive features of the ceramic objects themselves. Small pellets applied to handles, for instance, imitate the riveted handles of metal vessels (cat. no. 19). Sharply angled shapes likewise seem alien to the traditional ceramic repertory and suggest an origin in metalwork (cat. no. 4).

The aesthetic sensibilities governing the potter's craft were significantly influenced by the forms and decorative approaches of metal vessels, which clearly served as models for many of the finest class of ceramic vessels. Particularly striking and well-documented examples of interaction between these media come from the Iron I–III periods in northern and western Iran (circa 1400–600 b.c.).

The excavations at Marlik uncovered tombs containing metal vessels deposited together with the ceramic versions they inspired, demonstrating close links between these media in shape, colors, decorative details, and surface treatment.[41] In other instances, clues to an origin in metalwork often survive even when specific metal prototypes are not preserved. The common practice of burnishing, for example, results in a lustrous, almost metallic sheen after firing. Other bows to metal prototypes are the colors of the ceramic vessels, reflecting the manipulation of firing conditions to produce red, brown, gray, and black wares (cat. nos. 13–15, 22). These wares most likely represent attempts to mimic the colors and gleaming surfaces of bronze, gold, and silver. Silver vessels may also have inspired a class of fine black wares, occasionally made in shapes that suggest origins in the costlier material. The dark-fired ware and burnished surfaces reinforce the impression that the potter sought to evoke the reflective surfaces of metalwork, perhaps especially silver, whose natural oxidation would have turned the vessels a lustrous black.[42]

A ceramic vessel belonging to this period bears ornament in the form of pellets applied in a concentric pattern around the base of the spout (fig. 3). Surviving bronze vessels with riveted spouts disclose the metallic inspiration for this shape and unusual decoration (fig. 4). Both metal and ceramic versions of these spouted jugs have been recovered from Iron II burials or habitation sites in the Luristan region of western Iran, indicating the probable date and source of the

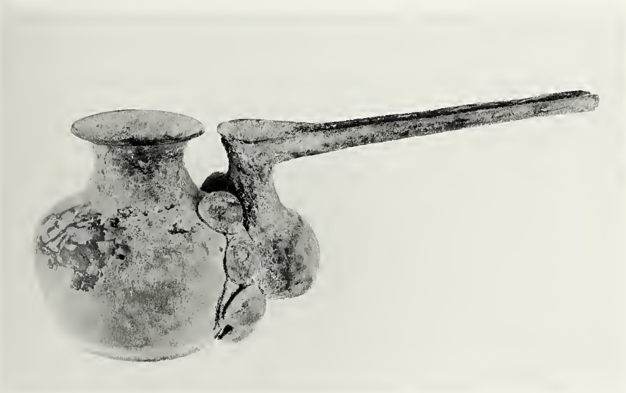

Fig. 4. Spouted jar, Iran, Iron Age II (ca. 1000–800 B.C.), bronze, 9.3 x 24.1. Arthur M. Sackler Gallery, gift of Mr. and Mrs. John B. Bunker in memory of Dr. Edith Porada, S1996.73

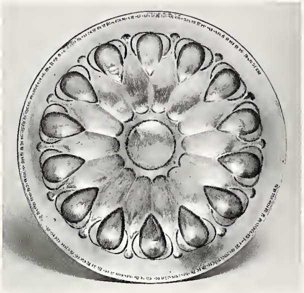

Fig. 5. Inscribed bowl, Iran, Achaemenid Period, reign of Artaxerxes I (465–425 B.C.), silver, 4.8 x 29.5. Freer Gallery of Art, purchase, F1974.30

examples now in the Sackler Gallery.[43] The light reddish brown surface of the ceramic example, although only faintly preserved, serves as a reminder that the bronze prototypes were originally a golden tan; surface corrosion has now more often colored them dark green.

A later period of ancient Iranian history contributes well-attested examples of interaction across ceramics, metalwork, and glass. During the Achaemenid Persian Empire (circa 550–330 B.C.), a group of vessels known as "Achaemenid bowls" were introduced from the Persian homeland in southwestern Iran to a considerable expanse of this vast polity as well as beyond the imperial frontiers. These were of two main types: a shallow bowl with a small base, sometimes known by the Greek name of *phiale* (cat. no. 32); and a deep bowl with a steeper rim (cat. no. 33). Both types were made in clay, glass (usually clear), bronze, silver, and gold-plated versions. Ceramic and glass bowls clearly imitate metal prototypes, extending to such features as radiating flutes modeled on the vessel floor (fig. 5).[44] Throughout the empire, ceramic Achaemenid bowls are made of finely levigated clay with astonishingly thin walls, the vessels fired to a pink, orange, or reddish color. Those colors may indicate the potter's intent to suggest the pale, reflective surfaces of drinking vessels made of gleaming, coppery bronze, or even of gold.

Ceramic production shared with or adapted from other technologies certain techniques employed in shaping, decorating, and firing. Burnishing, for example, may have had its origin in the grinding and polishing required to make stone vessels.[45] Metals, too, were sometimes burnished, supplying another link between metalworking and ceramic production. Another of these shared technologies was the manufacture of fine plaster from limestone, which likewise draws on advances in pyrotechnology, the application of heat in manipulating the properties of materials. Analysis of plaster excavated from the site of 'Ain Ghazal, located near Amman in modern Jordan, has considerably enriched the understanding of this early technology. At 'Ain Ghazal, one of the largest early agricultural villages known in Southwest Asia (circa 8500–5500 B.C.), fine plaster covered walls and floors of houses and was also used to fashion objects ranging from small figurines to large-scale statues. Plaster made from limestone requires a sophisticated mastery of technology. Depending on the type of limestone, this requires temperatures in the range of 600–900° C. The control over high temperatures required to produce lime plaster was probably a key step in the development of ceramic technology. By 5500 B.C., pottery was produced in kilns at 'Ain Ghazal and other sites in the vicinity.[46]

The natural world likewise provided a source of inspiration for potters and artisans who employed other means of artistic expression (cat. nos. 3 and 5). In the making of ancient Iranian ceramics, the abundant and often dramatic renderings of animal images richly illustrate this fact. Wild goats, for example, are among the earliest subjects of ceramic decoration among the Neolithic cultures of the Zagros region. Later, over a wide area of western Iran, pots were made entirely or in part in the form of zebu, gazelle, ram, and other animals. This vessel type persisted for millennia, in both clay and metal versions.

EXCHANGE, TRADE, AND INTERACTION WITH THE WIDER WORLD

Studies of the earliest ceramic vessels produced in Southwest Asia demonstrate close similarity in forming methods and styles of decoration over an astonishingly wide geographical range. On technological grounds, wares from the Neolithic sites in the Zagros region of western Iran cannot be distinguished from samples found at Jericho.[47] Similarly, the Neolithic and Chalcolithic painted wares from Zagros area sites resemble those from northern and southern Mesopotamia.[48] Contact among peoples over a vast expanse of Southwest Asia beginning in the Neolithic period of early farming villages has also been demonstrated by the spread of other technologies, including the cultivation of plants and domestication of animals. Chemical analysis of obsidian tools excavated from sites throughout the region has documented a long-distance trade in this volcanic glass for the same early period.[49] Ideas about how to make and decorate clay vessels would have circulated through precisely such routes of economic and cultural interaction.

At various times and places in ancient Southwest Asia and the eastern Mediterranean world, pots were exchanged or bartered for their contents. In the Greek world, for example, wine and oil stored in amphorae were routinely shipped over considerable distances.[50] Occasionally, the pots themselves were sought after as merchandise: certain painted styles of Greek ceramic drinking cups were traded over a wide area of the Mediterranean region.[51]

The "Achaemenid bowls" discussed earlier in connection with metal prototypes for ceramic vessels illustrate the widespread distribution of a ceramic vessel type through local manufacture rather than export. A recent study of these bowls at the site of Sardis, in western Turkey, has reconstructed the circumstances of their introduction, production, and impact on local tableware customs. Sardis, an important provincial capital, was located near the empire's western frontier and had served earlier as the capital of the Lydian empire ruled by the dynasty of King Croesus, the ruler defeated by Cyrus the Great in 546 B.C. Visual and technical examination of the Achaemenid bowls excavated at Sardis shows that they were produced locally. Existing shapes traditionally used as drinking vessels, with two small handles, continued to be made following the Achaemenid Persian conquest, but they appear in much smaller numbers. The new, Persian-style bowls became the preferred shape.[52]

With the advent of the Achaemenid Persian Empire, Iranian artistic traditions in a wide range of media—ceramics, metalwork, and textiles—reemerged as central elements in imperial fashions that circulated extensively throughout the eastern Mediterranean and Central and Southwest Asia. The palace workshops established under the Achaemenid kings continued to draw on these traditions even after the conquests of Alexander the Great in the 330s B.C., setting the stage for later periods of Iranian artistic creativity during the Parthian (circa 250 B.C.–A.D. 224) and Sasanian (circa 224–651) periods.

NOTES

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7. Moorey, *Ancient Mesopotamian Materials and Industries,* 141; A. J. Spencer, "Dynastic Egyptian Pottery," in *Pottery in the Making: World Ceramic Traditions,* ed. Ian Freestone and David Gaimster (London: British Museum Press, 1997), 62–67.

8. Carol Kramer's studies are fundamental and also provide additional references: "Pots and Peoples," in *Mountains and Lowlands: Essays in the Archaeology of Greater Mesopotamia,* ed. Louis D. Levine and T. Cuyler Young, Jr., Bibliotheca Mesopotamica 7 (Malibu: Undena, 1977), 91–112; "Ceramic Production and Specialization," *Paléorient* 11 (1985): 117–19; "Ceramic Ethnoarchaeology," *Annual Review of Anthropology* 1 (1985): 77–102.

9. Michelle Hegmon, "Technology, Style, and Social Practices: Archaeological Approaches," in *The Archaeology of Social Boundaries,* ed. Miriam T. Stark (Washington, D.C.: Smithsonian Institution Press, 1998), 264–79, for an overview, with further references; Chandra L. Reedy and Terry J. Reedy, "Relating Visual and Technological Styles in Tibetan Sculpture Analysis," *World Archaeology* 25 (1994): 304–20, also offer an excellent introduction to the concept of technological style.

10. Olivier P. Gosselain, "Social and Technical Identity in a Clay Crystal Ball," in *The Archaeology of Social Boundaries,* ed. Miriam T. Stark (Washington, D.C.: Smithsonian Institution Press, 1998), 82.

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12. Prudence M. Rice, *Pottery Analysis: A Sourcebook* (Chicago: University of Chicago Press, 1987), 5–6.

13. Frederick R. Matson, "Potters and Pottery in the Ancient Near East," in *Civilizations of the Ancient Near East,* ed. Jack M. Sasson, et al. (New York, NY: Charles Scribner's Sons, 1995), 1,555–56.

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33. Haerinck, "The Iron Age in Gilan—Proposal for a Chronology," 63–78; Kawami, *Iranian Ceramics from the Arthur M. Sackler Collections*, 15–17, 27–29, provides references to Tepe Sialk.

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35. Negahban, *Marlik: The Complete Excavation Report*, 126–28.

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40. Kawami, *Iranian Ceramics from the Arthur M. Sackler Collections*, 28–29, discusses and provides further references.

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52. Dusinberre, "Satrapal Sardis: Achaemenid Bowls in an Achaemenid Capital," 73–102.

CATALOGUE

1 JAR
Iran, Chalcolithic period
(ca. 5500–3000 B.C.)
Earthenware
30.6 x 33.4
Gift of Osborne and Gratia Hauge,
S1998.161

2 BOWL
Iran, Chalcolithic period
(ca. 5500–3000 B.C.)
Earthenware
12.9 x 20.0
Gift of Osborne and Gratia Hauge,
S1998.184

3 BOWL
Iran, Chalcolithic period
(ca. 5500–3000 B.C.)
Earthenware
7.7 x 22.3
Gift of Victor and Takako Hauge,
S1998.309

4 JAR
Iran, Late Bronze Age
(ca. 2400–1400 B.C.)
Earthenware
20.4 x 20.5
Gift of Osborne and Gratia Hauge,
S1998.190

5 JAR
Iran, Late Bronze Age
(ca. 2400–1400 B.C.)
Earthenware
23.4 x 21.7
Gift of Osborne and Gratia Hauge,
S1998.21

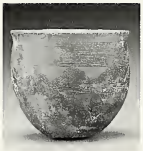
6 BOWL
Iran, Iron Age I (ca. 1400–1000 B.C.)
Earthenware
19.2 x 34.2
Gift of Osborne and Gratia Hauge,
S1998.174

7 BEAK-SPOUTED JAR
Iran, Iron Age I–II
(ca. 1400–800 B.C.)
Earthenware
17.4 x 37.7
Gift of Osborne and Gratia Hauge,
S1998.23

8 JUG
Iran, Iron Age I–II
(ca. 1400–800 B.C.)
Earthenware
36.1 x 29.0
Gift of Osborne and Gratia Hauge,
S1998.24

9 TRIPOD BOWL
Iran, Iron Age I–II
(ca. 1400–800 B.C.)
Earthenware
15.4 x 37.3 x 28.2
Gift of Osborne and Gratia Hauge,
S1998.166

10 JUG
Iran, Iron Age I–II
(ca. 1400–800 B.C.)
Earthenware
37.1 x 30.6
Gift of Osborne and Gratia Hauge,
S1998.171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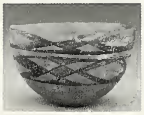
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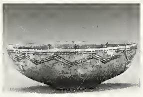
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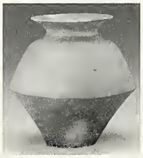
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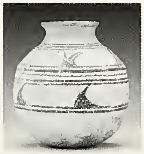
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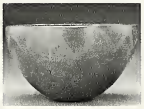
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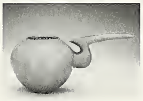
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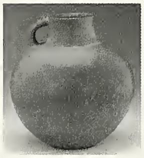
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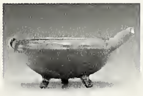
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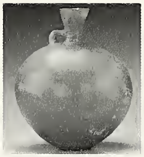
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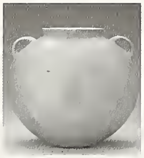
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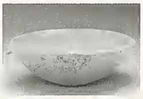
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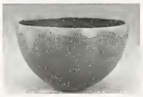
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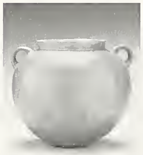
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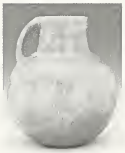
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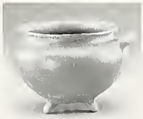
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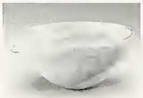
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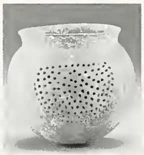
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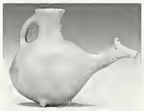
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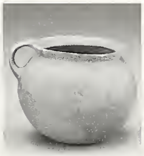
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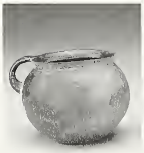
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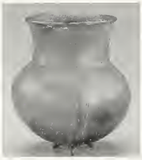
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11 Jar
Iran, Iron Age I–II
(ca. 1400–800 B.C.)
Earthenware
31.8 x 35.4
Gift of Osborne and Gratia Hauge,
S1998.177

12 Bowl
Iran, Iron Age I–II
(ca. 1400–800 B.C.)
Earthenware
10.7 x 31.2 x 30.0
Gift of Osborne and Gratia Hauge,
S1998.179

13 Bowl
Iran, Iron Age I–II
(ca. 1400–800 B.C.)
Earthenware
14.2 x 23.5
Gift of Osborne and Gratia Hauge,
S1998.193

14 Jar
Iran, Iron Age I–II
(ca. 1400–800 B.C.)
Earthenware
26.8 x 31.2 x 31.0
Gift of Osborne and Gratia Hauge,
S1998.194

15 Jug
Iran, Iron Age I–II
(ca. 1400–800 B.C.)
Earthenware
23.9 x 20.4
Gift of Osborne and Gratia Hauge,
S1998.195

16 Tripod bowl
Iran, Iron Age I–II
(ca. 1400–800 B.C.)
Earthenware
17.3 x 26.0 x 24.7
Gift of Osborne and Gratia Hauge,
S1998.196

17 Bowl
Iran, Iron Age I–II
(ca. 1400–800 B.C.)
Earthenware
11.6 x 29.5 x 28.2
Gift of Osborne and Gratia Hauge,
S1998.200

18 Sieve
Iran, Iron Age I–II
(ca. 1400–800 B.C.)
Earthenware
11.2 x 13.5
Gift of Osborne and Gratia Hauge,
S1998.204

19 Zoomorphic vessel
Iran, Iron Age I–II
(ca. 1400–800 B.C.)
Earthenware
19.4 x 27.2 x 14.3
Gift of Osborne and Gratia Hauge,
S1998.206

20 Cup
Iran, Iron Age I–II
(ca. 1400–800 B.C.)
Earthenware
9.8 x 12.9 x 12.0
Gift of Victor and Takako Hauge,
S1998.316

21 Cup
Iran, Iron Age I–II
(ca. 1400–800 B.C.)
Earthenware
10.3 x 14.4 x 13.0
Gift of Victor and Takako Hauge,
S1998.317

22 Jar with tripod base
Iran, Iron Age I–II
(ca. 1400–800 B.C.)
Earthenware
15.1 x 13.5
Gift of Victor and Takako Hauge,
S1998.318

23 **Jar**
Iran, Iron Age I–II
(ca. 1400–800 B.C.)
Earthenware
28.1 x 26.1
Gift of Victor and Takako Hauge,
S1998.320

24 **Bowl with spout**
Iran, Iron Age I–II
(ca. 1400–800 B.C.)
Earthenware
8.5 x 21.6 x 16.6
Gift of Victor and Takako Hauge,
S1998.334

25 **Jug**
Iran, Iron Age I–II
(ca. 1400–800 B.C.)
Earthenware
24.9 x 21.4
Gift of Victor and Takako Hauge,
S1998.335

26 **Jar**
Iran, Iron Age II (ca. 1000–800 B.C.)
Earthenware
12.8 x 12.6
Gift of Victor and Takako Hauge,
S1998.328

27 **Jar**
Iran, Iron Age II (1000–800 B.C.)
Earthenware
15.7 x 15.2
Gift of Victor and Takako Hauge,
S1998.329

28 **Jar**
Iran, Iron Age II (ca. 1000–800 B.C.)
Earthenware
18.4 x 18.5
Gift of Victor and Takako Hauge,
S1998.330

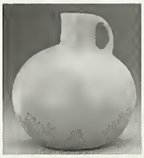
29 **Jar**
Iran, Iron Age II–III
(ca. 1000–600 B.C.)
Earthenware
30.4 x 31.2
Gift of Osborne and Gratia Hauge,
S1998.22

30 **Cup**
Iran, Iron Age II–III
(ca. 1000–600 B.C.)
Earthenware
9.7 x 12.8 x 10.7
Gift of Victor and Takako Hauge,
S1998.312

31 **Jar**
Iran, Iron Age II–III
(ca. 1000–600 B.C.)
Earthenware
11.1 x 12.2
Gift of Victor and Takako Hauge,
S1998.313

32 **Bowl**
Iran, Achaemenid Period
(Iron IV, ca. 550–330 B.C.)
Earthenware
8.6 x 22.2
Gift of Osborne and Gratia Hauge,
S1998.197

33 **Bowl**
Iran, Achaemenid Period
(Iron IV, ca. 550–330 B.C.)
Earthenware
12.5 x 14.9
Gift of Osborne and Gratia Hauge,
S1998.199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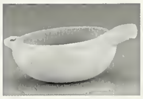
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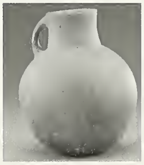
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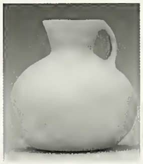
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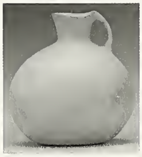
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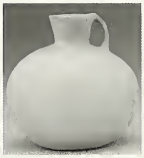
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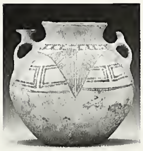
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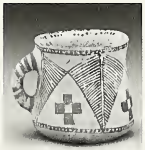
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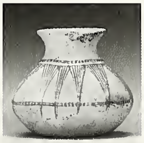
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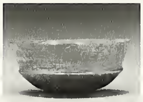
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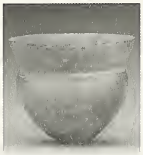
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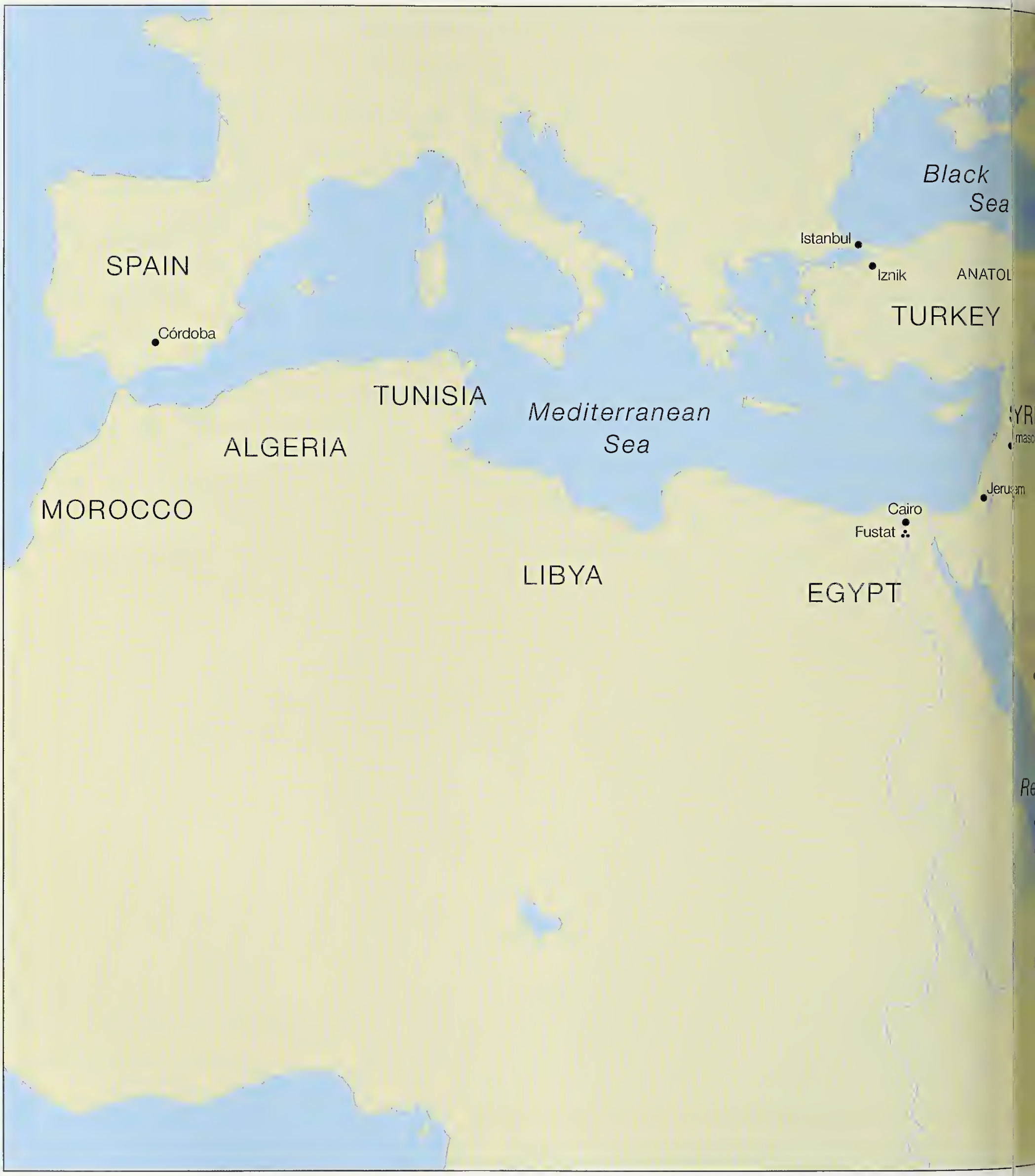
Ceramics from the Islamic World

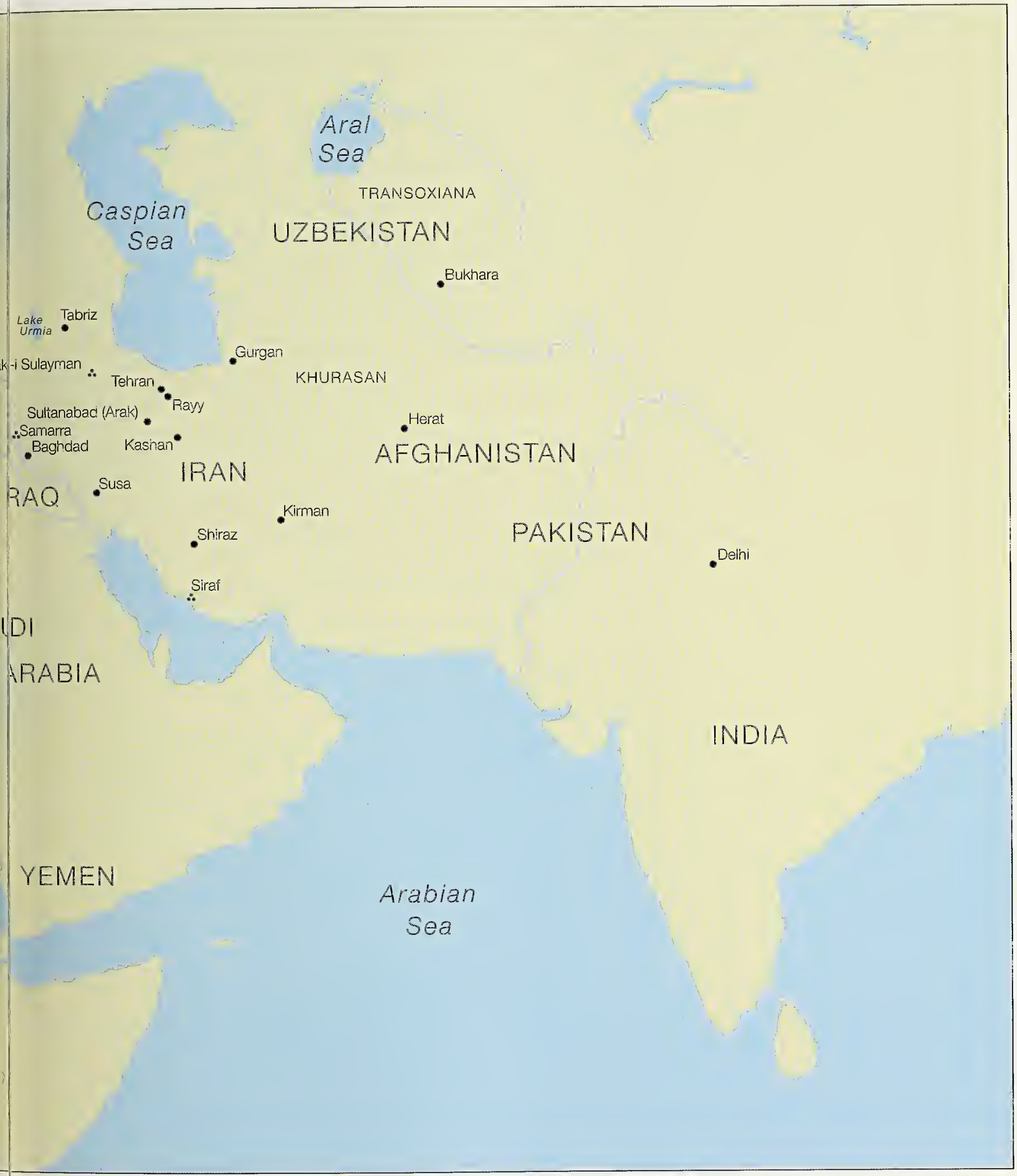
Massumeh Farhad

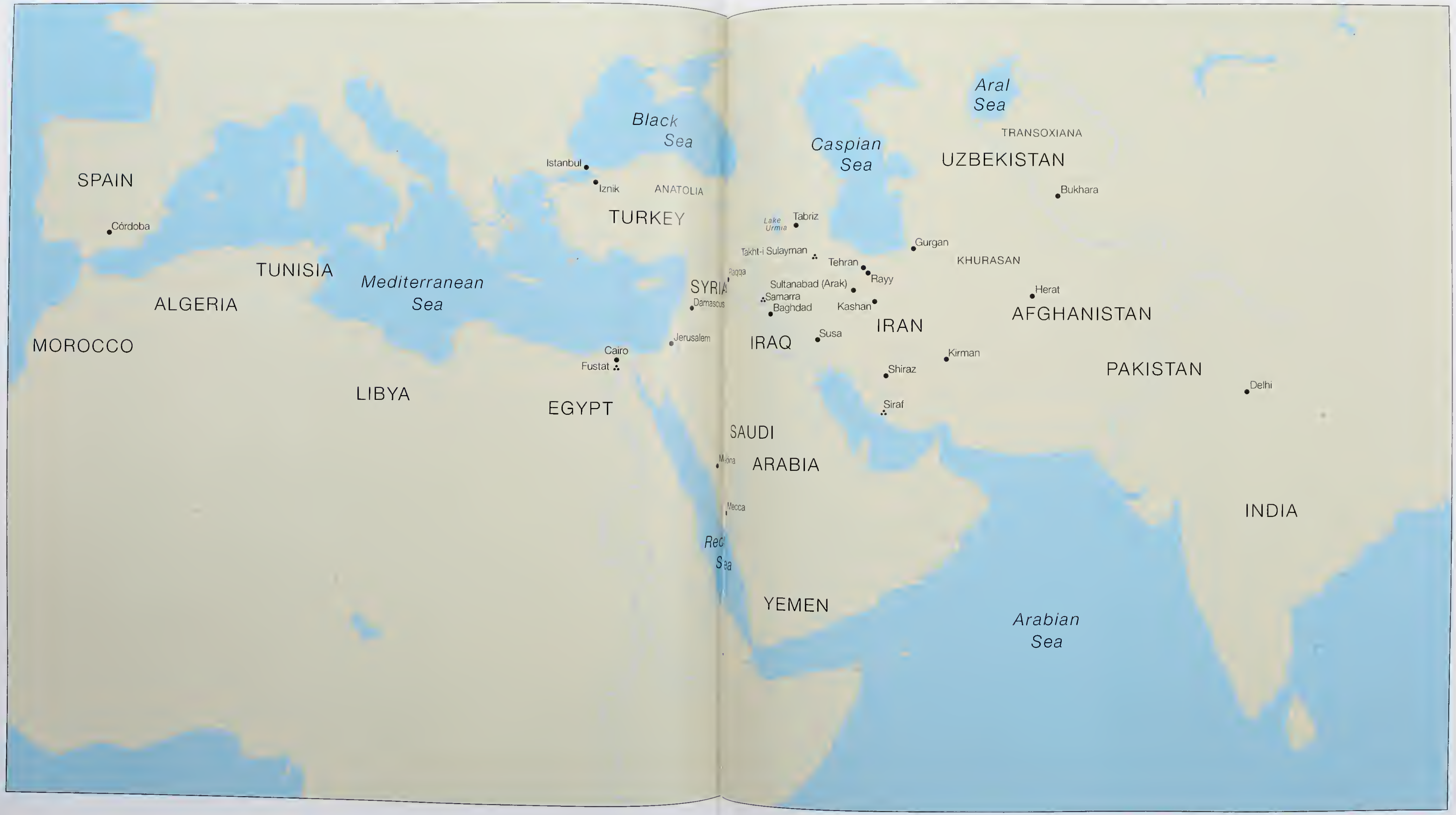
The twenty-three ceramic vessels and tiles that make up the Hauge gift originate primarily from one of the great artistic centers of the Islamic world—Iran. Dating from the ninth to the twentieth century and smaller in number than both the Hauge ancient Iranian and Khmer holdings, this collection nonetheless includes outstanding examples of several important ceramic traditions that flourished in this region after the advent of Islam. Perhaps even more important, these vessels and tiles are also representative of different traditions, from that of the court and the urban elite to that of the vernacular, which in turn can be seen as emblematic of broader cultural, social, and political concerns.

Interest in Islamic Near Eastern ceramics in the West dates back to the late nineteenth century,[1] when Europe, as part of larger colonial interests and strategies, became increasingly fascinated with the East and "things oriental," including its art and architecture.[2] In his seminal study on Islamic ceramics published in 1947, Arthur Lane bluntly underscores the problems and uncertainties that surrounded early investigations: "Pottery vessels began to reach Western markets in the 1880s. They had been excavated from rubbish-pits on the sites of ruined cities such as Rayy in Persia or Raqqa in northern Mesopotamia, but dealers' statements as to the provenance of individual pieces were (and are still) seldom to be trusted." Initially valued mainly for their bright colorful glazes and lively surface decoration, vessels in fragmentary condition were often arbitrarily and inaccurately restored before appearing on the market. Lane maintains that "at workshops mainly in Paris missing fragments are replaced by pieces from other vessels or made up in plaster, and the whole so expertly over-painted as to baffle the most expert eye.

Cat. no. 34. Bowl, probably Iran, 9th–10th century, earthenware painted under glaze, 4.2 x 14.0. Gift of Osborne and Gratia Hauge, S1997.108


Black Sea
Istanbul
Iznik
ANATOL
TURKEY
SPAIN
Córdoba
TUNISIA
Mediterranean Sea
YR
masc
ALGERIA
MOROCCO
Jeru m
Cairo
Fustat
LIBYA
EGYPT
Re


Aral Sea
TRANSOXIANA
Caspian Sea
UZBEKISTAN
Bukhara
Lake Urmia
Tabriz
Gurgan
k-i Sulayman
Tehran
KHURASAN
Rayy
Sultanabad (Arak)
Herat
Samarra
Baghdad
Kashan
AFGHANISTAN
IRAN
RAQ
Susa
Kirman
Shiraz
PAKISTAN
Delhi
Siraf
DI
RABIA
INDIA
YEMEN
Arabian Sea


Black Sea
Caspian Sea
Aral Sea
TRANSOXIANA
UZBEKISTAN
Bukhara
SPAIN
Córdoba
Istanbul
Iznik
ANATOLIA
TURKEY
Lake Urmia
Tabriz
Takht-i Sulayman
Tehran
Rayy
Gurgan
KHURASAN
TUNISIA
ALGERIA
Mediterranean Sea
Raqqa
SYRIA
Damascus
Sultanabad (Arak)
Samarra
Baghdad
Kashan
Herat
AFGHANISTAN
MOROCCO
IRAN
Jerusalem
Cairo
Fustat
IRAQ
Susa
Kirman
Shiraz
PAKISTAN
Delhi
LIBYA
EGYPT
Siraf
SAUDI ARABIA
Medina
Mecca
INDIA
Red Sea
YEMEN
Arabian Sea

Genuine pots are often redecorated or given fraudulent inscriptions, and in this largely unknown field impossible forgeries have for a time gained credence."[3]

While the burgeoning commercial market for ceramics continued to fuel clandestine operations for decades,[4] a number of more controlled archaeological excavations helped to establish a foundation for the study of Islamic ceramics, especially the early periods. Chief among these was Ernst Herzfeld's and Friedrich Sarre's 1911–13 excavations in present-day Iraq at Samarra, the ninth-century capital of the Abbasid dynasty (750–1258), under whose rule the arts, especially ceramics, developed in a variety of remarkable forms and directions. Sarre's publication in 1925 on the Samarra ceramic finds became a cornerstone in the study of early Islamic ceramics.[5] Subsequent finds at other historically important centers, such as the Persian sites of Rayy, Gurgan, and Siraf,[6] and Fustat in Egypt,[7] significantly expanded the body of published material. Ten years after his groundbreaking *Early Islamic Pottery,* Lane published *Later Islamic Pottery,*[8] which offered the first systematic study of the history and chronology of most major ceramic traditions in the Islamic world. Organized according to period, geographic location, and technique, Lane's approach became the standard for many subsequent publications, such as Geza Feheravari's 1973 *Islamic Pottery: A Comprehensive Study Based on the Barlow Collection,* which discusses a collection now at the Fitzwilliam Museum in Cambridge, or Ernst Grube's catalogue, published in 1976, on the ceramics in the Keir collection in Surrey (England), which details one of the finest private holdings of Islamic pottery.[9] In addition to the growing number of scholarly catalogues on private and public ceramic collections, several publications have reexamined and reevaluated specific ceramic traditions, including Umayyid and Abbasid pottery, Persian luster ware, or the celebrated Iznik ceramics from Ottoman Turkey.[10]

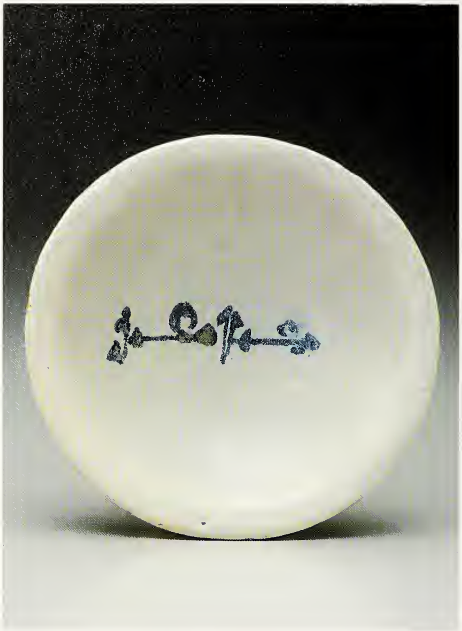
Many of the more recent ceramic studies have moved beyond the taxonomic approach and instead provide a broader historical context for the understanding of ceramic production and its significance. For instance, in his articles and reports on the excavations at Siraf in Iran, a town on the Persian Gulf, David Whitehouse has stressed the importance of domestic and international trade in the distribution of ceramic wares, while Gülru Necipoğlu's analysis of a series of sixteenth-century ceramic tiles underlines the role of migrating craftsmen and artists in the dissemination of certain styles and techniques in the eastern Islamic world.[11] The use of writing as well as the meaning of inscriptions on ceramic vessels and tiles is another topic that has received attention by a number of scholars, notably Lisa Golombek, A. S. Melikian-Chirvani, and Abdullah Quchani.[12]

Since the 1980s, scientific analysis of ceramic bodies and glazes has also gained currency, helping to provide an astonishing range of new information. For instance, recent studies have relied on such new techniques as petrographic and neutron activation analysis[13] to identify provenance, origin, and place of production for individual ceramic types. Thermoluminescence, an established scientific technique, has been employed with increased frequency to date certain wares, as has X-ray fluorescence, used to determine composition. When combined with formal art-historical analysis and archaeological data, these new analytical approaches have been instrumental in providing a more accurate picture of the physical structure of ceramics. They also have contributed to our understanding of the process and meaning of innovation in this artistic tradition and, by extension, the socioeconomic roles pottery served in the multiple cultures of the Islamic world.[14]

HISTORY

The history of ceramics in Islamic cultures can be traced to the founding of Islam by the Prophet Muhammad (circa 570–632) in Arabia (present-day Saudi Arabia), a religion that spread rapidly and primarily by military means through much of the former Byzantine (324–1453) and Sasanian (224–651) lands of North Africa and West Asia. As heirs to the long-established ceramic traditions of the Byzantine and Sasanian empires, potters working under the first Muslim dynasty, the Umayyids (661–749), largely continued to produce and refine many earlier shapes and techniques.[15]

With the Abbasid overthrow of the Umayyids in 749, one of the most remarkable periods of economic, cultural, and artistic growth in Islamic history followed, fostering a host of important artistic advances. The Abbasids actively encouraged long distance trade by land and sea, and in the process became avid users of Chinese porcelain and stoneware imports.[16] This deep-rooted fasci-



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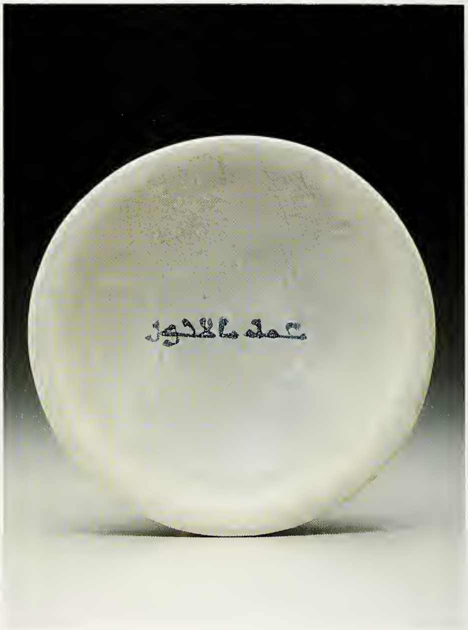


35

Cat. no. 34. Bowl, probably Iran, 9th–10th century, earthenware painted under glaze, 4.2 x 14.0. Gift of Osborne and Gratia Hauge, S1997.108

Cat. no. 35. Bowl, probably Iran, 9th–10th century, earthenware painted under glaze, 6.3 x 22.5. Gift of Osborne and Gratia Hauge, S1997.109

nation with Chinese material culture, especially luxury goods, continued for centuries and was shared by much of the Islamic world. Historically, Chinese porcelain was particularly admired for its strength, purity, and whiteness. In the absence of kaolin, the vital ingredient in porcelain, Muslim potters created their own "white" wares, resulting in one of the most distinctive groups of early Islamic ceramics (cat. nos. 34, 35).[17] Unlike the undecorated Chinese prototypes, however, ceramics produced by Muslim potters were often embellished with epigraphic or abstract decoration in cobalt blue and are commonly referred to as "blue-on-white" wares.[18] This overwhelming impulse to color and decorate surfaces, the distinguishing feature of ceramics from the Islamic world, has remained its most enduring characteristic.

As Sarre's publication on the Samarra ceramic finds included many blue-on-white vessels, these wares were initially associated almost exclusively with that city and dated accordingly. Only one kiln site, however, has been found near this Abbasid capital, while excavations at Siraf on the Persian Gulf have uncovered at least thirty kilns. Moreover, additional examples of this ceramic type have been excavated at Susa, in southeastern Iran, suggesting that blue-on-white vessels were produced in more than one location, with Samarra serving as one of the principal markets, rather than producer.[19]

By the ninth century, Abbasid political unity was seriously challenged by Shi'ism, the branch of Islam that considers the Prophet's cousin and son-in-law, Ali, as his rightful heir. This powerful religious force resulted in the rise of a number of independent dynasties in Egypt (such as the Fatimids, 969–1171) and throughout much of Iran. One of the most culturally significant of the Persian dynasties was the Samanids (819–1005), who were of local aristocratic lineage and gained control of northeastern Iran and western parts of present-day Afghanistan. During Samanid rule, the capital at Bukhara was transformed into a highly influential center of traditional Arabic learning and experienced a tremendous renaissance in Persian language and literature. It was within this vibrant intellectual and artistic milieu that the poet Firdawsi composed his extraordinary *Shahnama* (Book of kings) in about 1010, a historical and mythical account of Iran's past that has come to be viewed as the country's national epic. The cultural amalgam of Arab and Persian elements so characteristic of literary efforts during this period was also evident in the portable arts, such as the celebrated Samanid wares inscribed with Arabic proverbs (fig. 1).[20] Another popular type of vessel produced during this period was the so-called sgraffiato ware (cat. nos. 36, 37), a term derived from the Italian *sgraffiare,* "to scratch," after the incised designs found on the vessels.[21] As is evident from the two Hauge examples, potters often combined incised lines with green, ocher, and brown color "splashes," initially believed to have been inspired by Chinese "splash wares" of the Tang dynasty (618–907). More recently, this hypothesis has been questioned as the proposed prototypes were reserved primarily for imperial tombs and would not have been exported to the Islamic world.[22] Less costly and time-consuming to produce than the Abbasid blue-on-white wares, sgraffiato ware enjoyed considerable popularity in both Iran and Iraq for decades.

In the late eleventh century, the Seljuqs, a Muslim Turkic tribe from Central Asia, swept across West Asia and quickly estab-

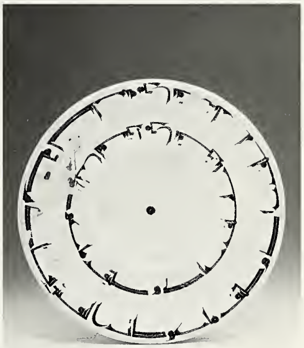
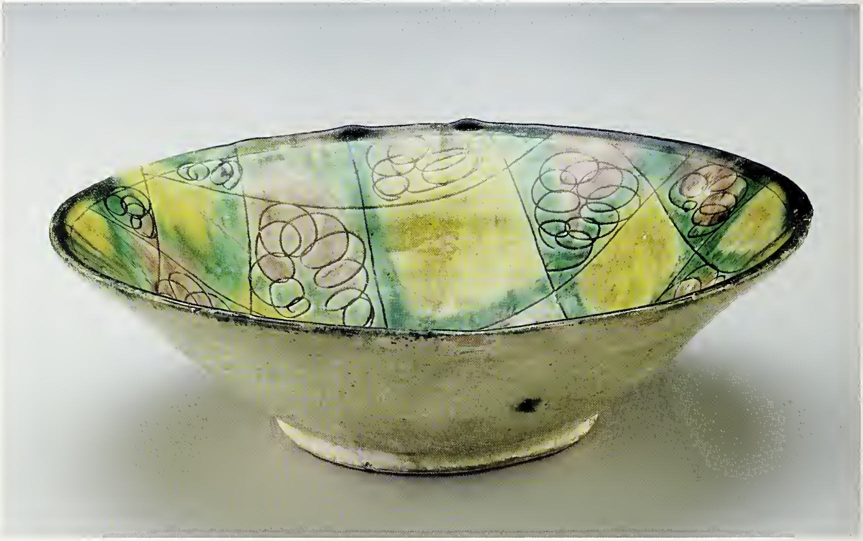


Fig. 1. Plate, Iran or Uzbekistan, 10th century, earthenware painted under glaze, diameter 46.8. Freer Gallery of Art, purchase, F1952.11



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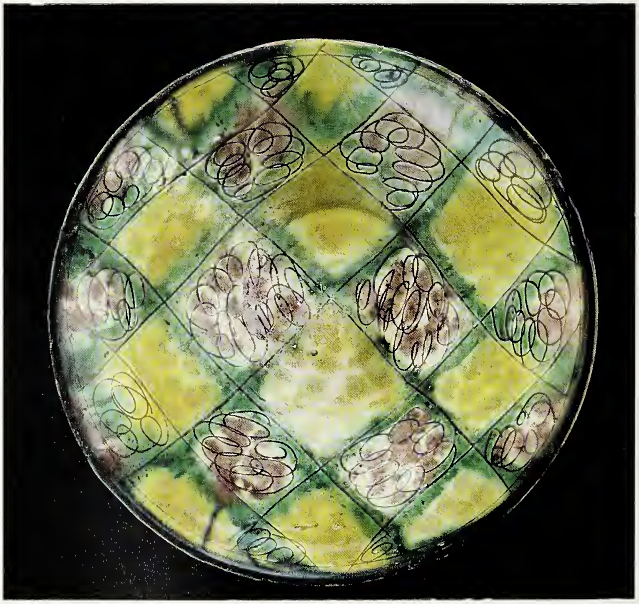
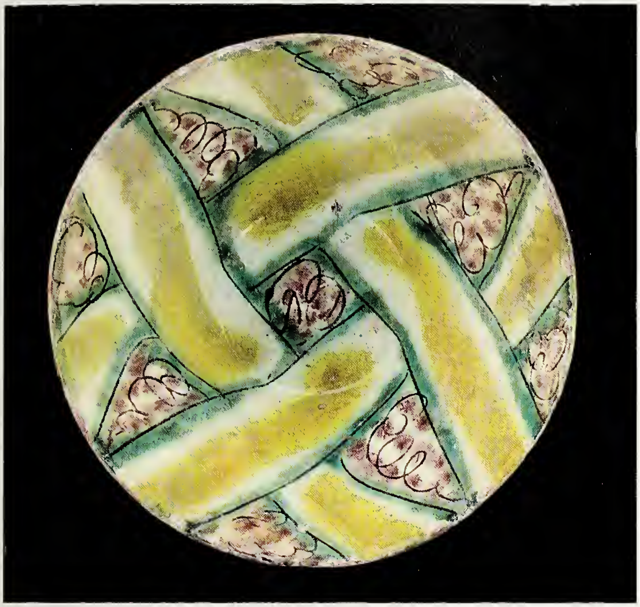
Cat. no. 36. Bowl, Iran, 10th century, earthenware painted and incised under glaze, 6.8 x 22.6. Gift of Victor and Takako Hauge, S1997.127



36 *(interior)*

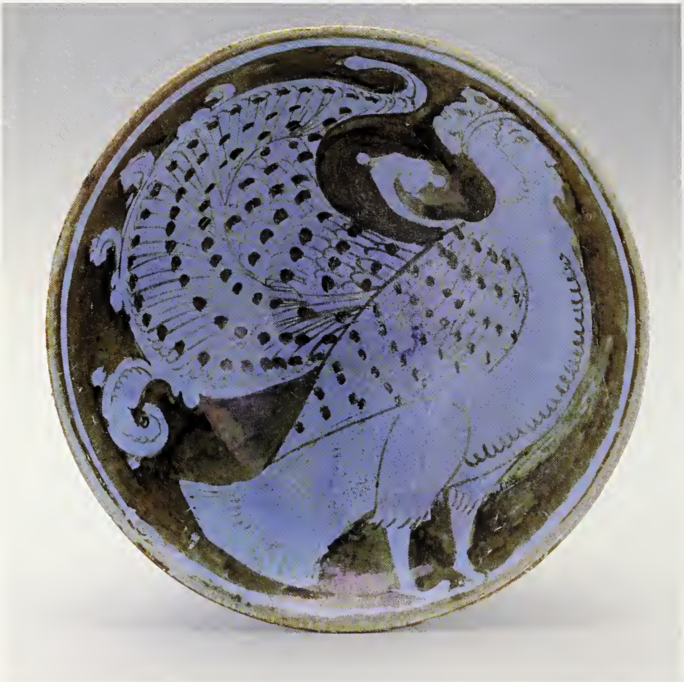


Cat. no. 37. Bowl, Iran, 10th century, earthenware painted and incised under glaze, 8.3 x 21.1. Gift of Victor and Takako Hauge, s1997.128

37

lished a vast empire that extended from present-day Iran's eastern borders to Anatolia. The Great Seljuqs (1040–1194), as the dynasty became known in Iran and Iraq, were among the most remarkable patrons of art and architecture in Islamic history. Intimately linked with the development and refinement of certain distinctive building types (Persian courtyard mosques), as well as decorative techniques (brickwork and inlaid metalwork), the Seljuqs, despite their Turkic origins, established the foundation for much of Persian art and architecture. Among the greatest Seljuq artistic achievements are ceramic wares decorated with lustrous pigments, a technique that was first developed in ninth-century Iraq but would later reach its apogee in Seljuq Iran.[23]

Samples of Persian luster-painted ceramics have been found in a number of different locations, such as Rayy, Sava, Gurgan, and Kashan, cities also believed to have been production centers. In the absence of kilns and "true" wasters (unsuccessfully fired ceramics) at



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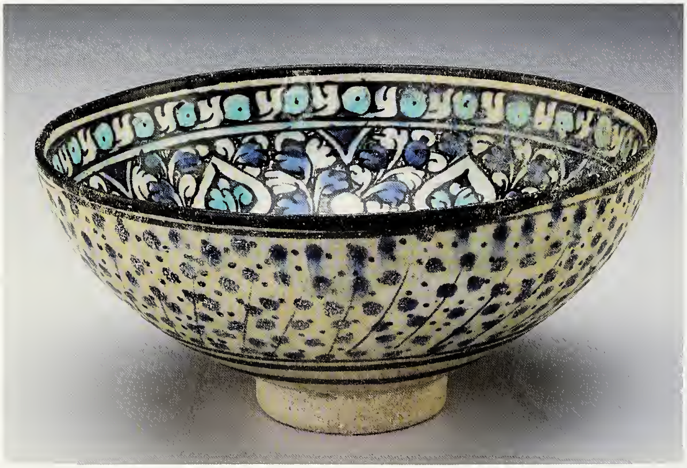

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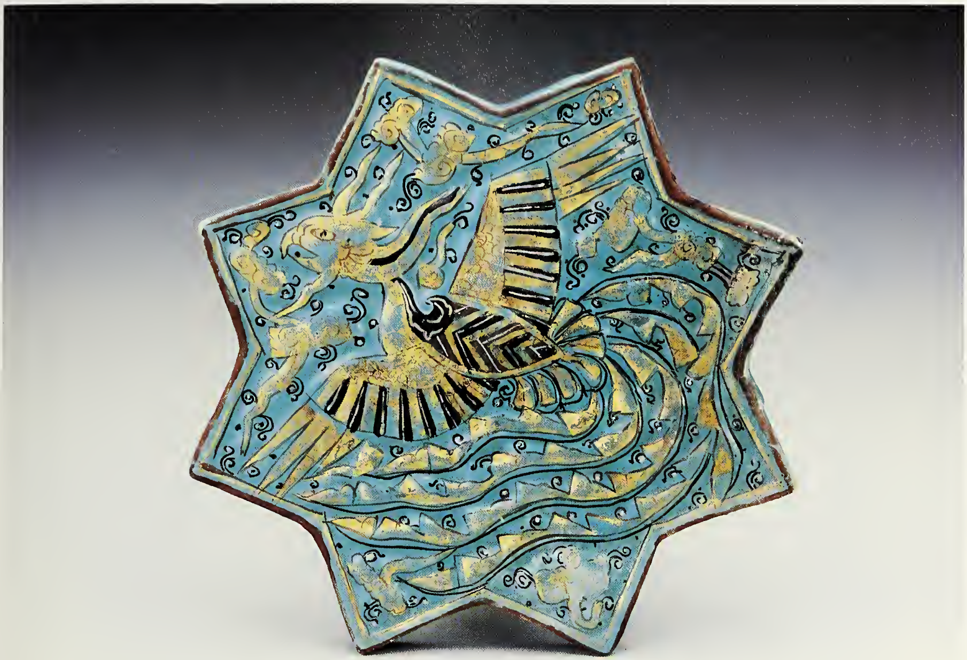


44

these sites, however, it has been proposed that Persian luster ware, such as the superb example from the Hauge collection (cat. no. 40), was produced primarily in Kashan, a city so synonymous with ceramics in the Persian mind that its name serves as the Persian term for tile, "kashi." Oliver Watson's arguments for the centralization of medieval luster ware production, which are based on ceramic finds in Kashan as well as references to this site on vessels and tiles, recently have been challenged by a study of luster ware production in Syria.[24]

Ceramic production in Kashan was only temporarily halted by the catastrophic Mongol invasions of West Asia in the mid–thirteenth century, and many of the styles and techniques established during the Seljuq period were continued and expanded under the following Turko-Mongol Il-Khanid rulers (1256–1353) of Iran and Iraq. During this period diplomatic and commercial relations with China flourished once again, facilitated by the fact that the Il-

Cat. no. 44. Tile, Iran, Takht-i Sulayman, 14th century, Stone-paste painted and gilded under glaze, 20.9 x 21.3 x 2.0. Gift of Osborne and Gratia Hauge, S1997.114

at left

Cat. no. 40. Bowl, Iran, probably Kashan, late 12th century, Stone-paste painted over glaze with luster, 7.8 x 17.3. Gift of Osborne and Gratia Hauge, S1997.113

Cat. no. 45. Bowl, Iran, 14th century, Stone-paste painted under glaze, 10.0 x 21.2. Gift of Victor and Takako Hauge, S1997.129

Cat. no. 46. Bowl, Iran, 17th century, stone-paste painted under glaze, 7.2 x 15.3. Gift of Victor and Takako Hauge, s1997.130

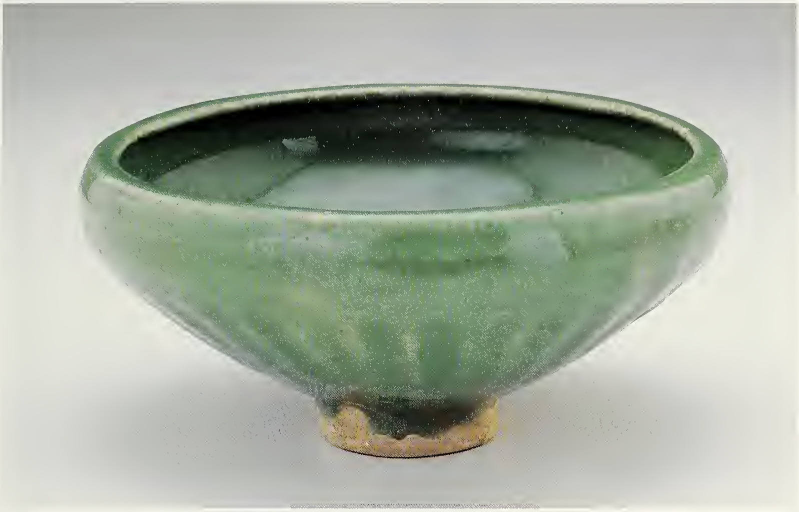
Cat. no. 47. Bowl, Iran, probably Kirman, 18th or 19th century, stone-paste painted under glaze, 20.6 x 37.9. Gift of Osborne and Gratia Hauge, s1997.121

Khanids and the ruling Yuan dynasty (1279–1368) were descended from the same Mongol family. Chinese luxury goods such as porcelain, textiles, lacquerwork, and paintings, were among the most valued imports for Il-Khanid ruling circles and provided Muslim artists with new visual sources, which they in turn adopted and integrated into the more abstract Persian pictorial language. The underglaze-painted, spherical bowl (cat. no. 45) with its design of abstracted peonies is typical of Il-Khanid wares, many of which were found near Sultanabad in western Iran, which has also lent its name to this particular type of pottery.[25]

As great patrons of religious and secular architecture, the Il-Khanids also actively encouraged the production of ceramic tiles, the most ubiquitous form of architectural decoration in Iran. The superb, eight-pointed tile (cat. no. 44), decorated in a technique known as *lajvardina,* literally meaning "cobalt," is associated with the monumental Il-Khanid palace known as Takht-i Sulayman (Throne of Solomon). One of the most dramatic and impressive Il-Khanid sites, the palace was built in the 1270s in northwestern Iran on the location of a Sasanian structure for the Mongol ruler Abaqa Khan (reigned 1265–82).

Islamic fascination with Chinese techniques continued well into the seventeenth century, when Persian potters created both blue-and-white and "celadon" vessels, such as the small, elegant Hauge bowl (cat. no. 46). These Chinese-inspired wares are generally associated with the city of Kirman in central Iran, one of the most important commercial and artistic centers during Safavid rule (1502–1732). Little is known about Persian ceramic production after the fall of the powerful Safavids in the early eighteenth century, a period generally dismissed by some specialists as derivative and uninspired.[26] The large, blue-glazed Hauge bowl (cat. no. 47) suggests the contrary. On the basis of its size and shape, the vessel was probably made in Kirman in the late eighteenth century or even later.

Many ceramic shapes and types produced under the Safavids survived into later periods. An unusual, little-studied group of such works are ceramic beehive covers. Beekeeping was practiced widely throughout much of the Islamic world, and bees were valued as a source of both honey and wax. The earliest known ceramic beehive cover is dated to 1703,[27] at the end of the Safavid period, but as the two Hauge examples (cat. nos. 48, 49) suggest, their production continued with great vitality well into the twentieth century.



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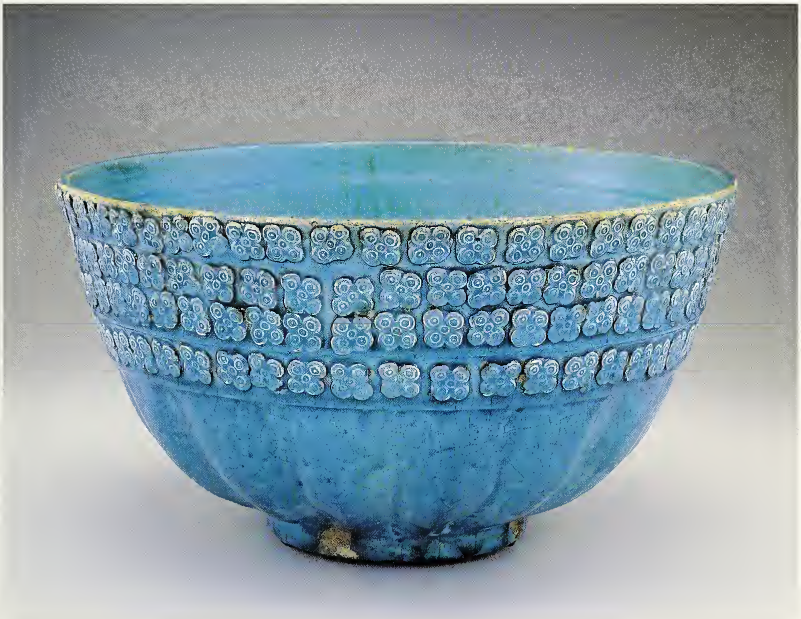

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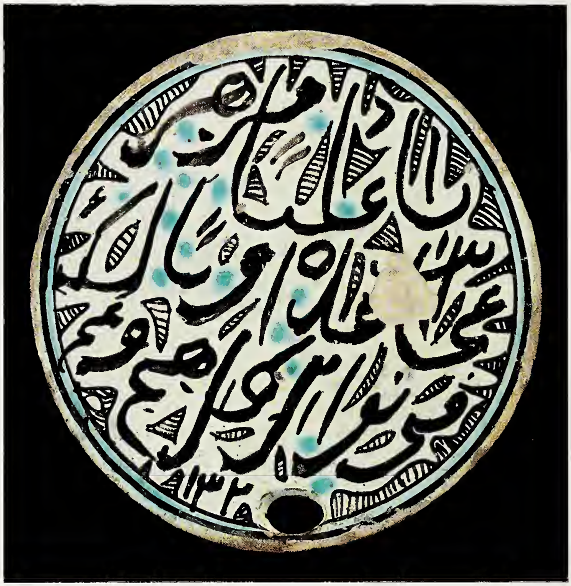
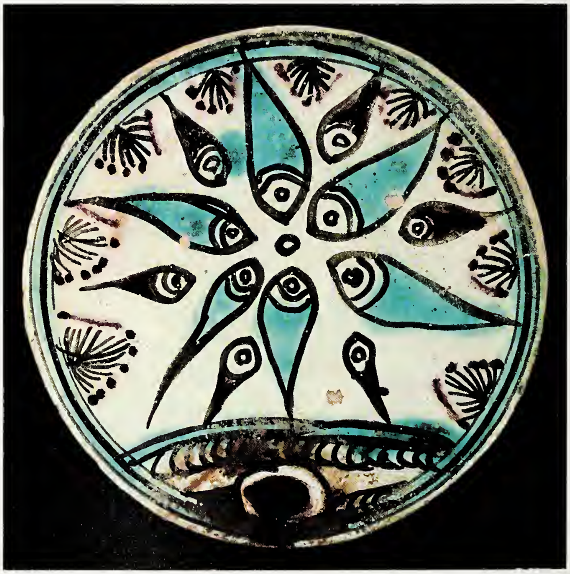


48

Cat. no. 48. Beehive cover, Iran, dated 13[0]2/18[8]4–[8]5, stone-paste painted under glaze, 1.4 x 23.0. Gift of Osborne and Gratia Hauge, s1997.122



49

Cat. no. 49. Beehive cover, Iran, late 19th–early 20th century, stone-paste painted under glaze, 1.5 x 22.1 x 22.1. Gift of Osborne and Gratia Hauge, s1997.124

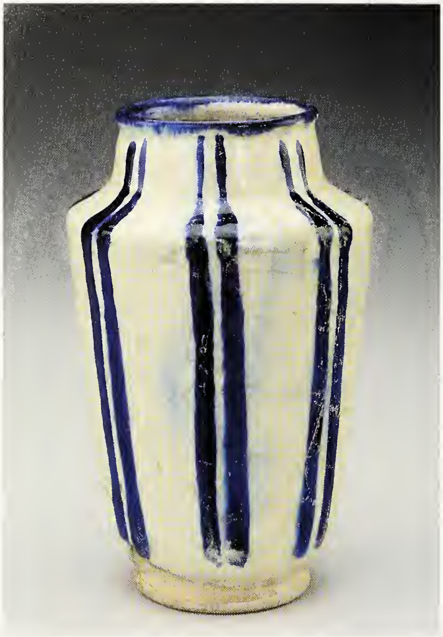
TECHNOLOGY

Shaping

While the Khmer and ancient Iranian ceramics in the Hauge collection are recognized for their bold and highly imaginative forms, ceramic shapes from the Islamic world tend to be relatively simple and conservative. Through the imaginative use of line and color, however, Muslim potters were able to animate visually their ceramic surfaces and thereby lend them remarkable beauty and distinction. The aesthetic appeal of the vessels depended not only on their embellished surfaces, but also on the ways underlying shapes supported the decoration and vice versa. The wares included plates, chargers, jars, bottles, ewers, cups, and bowls that could be easily handled, moved, and stored. While certain vessels, such as large storage jars, were frequently produced by coiling,[28] most were either thrown on the wheel, a method already long in use in West Asia prior to the Muslim conquest, or created with molds.

Most major production centers, such as Basra (Iraq), Fustat (Egypt), and Kashan (Iran), were situated near rivers and had access to an unlimited supply of the necessary raw materials—clay, sand, and water. Occasionally, certain ingredients such as the particularly fine clay known as *sang-i chini* (china stone) found near Nantanz in central Iran, were transported for miles, but generally potters relied on local materials.[29] Until the eleventh century, ceramic vessels were earthenware, a porous, clay-based body. First, the clay and sand were sifted, and then water was added to create a firm paste; the mixture was then thrown on a wheel to create the desired shape. Some vessels, such as the ninth–tenth century Abbasid bowls (cat. nos. 34, 35), bear a notable resemblance in shape to imported Tang porcelain or stoneware, which must have served as models. The Hauge vase with sloping shoulders (cat. no. 42) and the turquoise-glazed bottle (cat. no. 43), on the other hand, represent wheel-thrown forms that are unique to the Persian ceramic tradition.

Faced with the growing demand for fine pottery in the eleventh century, Muslim craftsmen also began using molds. The popularity of this new technique coincided with the development of a synthetic material known as stone-paste or fritware, which revolutionized ceramic production in much of the Islamic world. In an exceptionally rare and invaluable treatise on medieval ceramic production,



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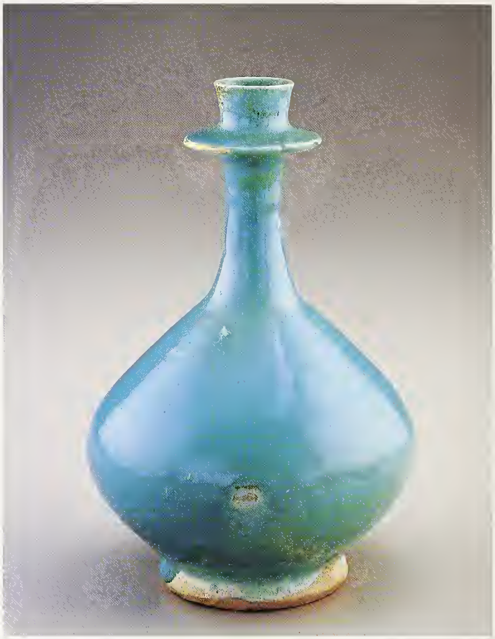


43

Cat. no. 42. Vase, Iran, late 12th–early 13th century, stone-paste painted under glaze, 17.8 x 11.1. Gift of Osborne and Gratia Hauge, S1997.116

Cat. no. 43. Bottle, Iran, 12th–13th century, stone-paste painted under glaze, 18.9 x 12.4. Gift of Osborne and Gratia Hauge, S1997.117

dated 1301, the Il-Khanid historian Abu'l Qasim Abdullah Kashani[30] describes stone-paste as ten parts of ground quartz (pebbles from the river bed), one part ground glass, and one part fine white clay. This mixture resulted in a stronger, thinner, and whiter body than the buff-colored earthenware. According to Abu'l Qasim, the mixture was:

> . . . kneaded well like dough and left to mature for one night. In the morning it is well-beaten by hand and the master craftsman makes it into a fine vessel on the potter's wheel; these are left standing until half dry. They are scraped down on the wheel and the feet are added, and when they are dry they are washed with a damp linen cloth in order to smooth over the lines on them so that they disappear. . . .[31]

Oliver Watson has pointed out that the finishing of the vessels in a semidry state also accounts for their thin, delicate walls, which could not have been achieved on the wheel.[32] As stone-paste was less malleable and more difficult to throw than earthenware, potters normally relied on molds to create their vessels. Molds were employed for open shapes, such as plates, chargers, and bowls, including the footed example in the Hauge collection (cat. no. 39 and fig. 2), and for closed shapes, such as ewers, bottles, and jugs. They were often reused, especially for tiles (cat. no. 44), which were needed in massive quantities to cover large architectural spaces. Reliance on molds also expedited production by introducing a measure of standardization and uniformity to the shapes, which would then be ready for decoration in a wide variety of motifs and designs.[33]

Decorating

Decoration is the most outstanding feature of ceramic production from Iran and Iraq, as well as from the rest of the Islamic world. Surfaces were treated much like a canvas and decorated with figurative, geometric, vegetal, and most importantly, epigraphic designs. Whether adapting decorative elements to the contours of a specific shape (cat. nos. 48, 49), covering the entire surface in an intricate design (cat. no. 45), or using it as a blank "canvas" to be highlighted (cat. nos. 34, 35), the aesthetic effect was clearly anchored to the relationship between the surface design and its underlying shape—a decorative concept evident in other media, such as metalwork or monumental architecture. By applying different design formulae to

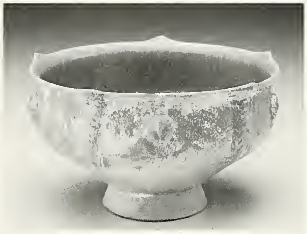
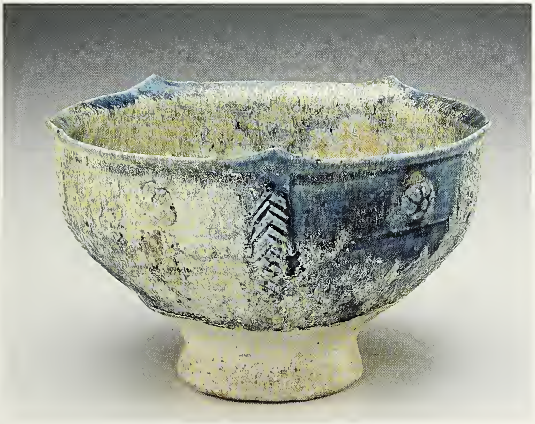


Fig. 2. Bowl, Iran, 12th century, stone-paste painted under glaze, 12.4 x 20.0. Gift of Osborne and Gratia Hauge, s1997.120



39

Cat. no. 39. Bowl, Iran, 12th century, stone-paste painted under glaze, 12.5 x 19.5. Arthur M. Sackler Gallery, gift of Osborne and Gratia Hauge, s1997.119

standardized shapes, potters succeeded in introducing tremendous visual range and variety to their work. Judicious choice of surface design not only animated the vessels, but also lent them additional levels of meaning. Inscriptions, for instance, could affirm the social, economic, or political status of the owner, refer to the function of a vessel, or invoke well-known poetic sentiments; figural imagery could echo the wider cultural ideals of those who commissioned the vessels or demonstrate a sophisticated and worldly taste.

As early as the ninth century, potters felt the need for a more neutral ground in order to realize the full potential of line and color. They began to use opacified glazes, as is evident from the two Hauge Abbasid bowls (cat. nos. 34, 35). These two vessels also belong to the earliest group of ceramic wares that employed writing—perhaps the most distinguishing characteristic of the arts of the Islamic world—as their principal decorative element.

Since the founding of Islam, calligraphy, or beautiful writing, has enjoyed a revered status, largely due to its close association with the very foundation of the faith, the Koran, perceived as God's unadulterated words as transmitted to the Prophet Muhammad. Through writing, the Koran (literally meaning "to recite") was recorded and given visual form, and by extension the art of writing, both religious and secular, assumed a central role in the visual culture of the Islamic world, emerging as the most ubiquitous symbol of the Islamic faith.

On both Hauge Abbasid bowls, (cat. nos. 34, 35) the cobalt-blue inscriptions appear in the very center of an otherwise neutral surface. According to Abu'l Qasim, cobalt ore was mined from the mountains near Kashan and in its natural state resembled "white silver shining in a sheath of hard black stone."[34] Similar to other wares in this group, the bowls are inscribed with the potter's name in the angular *kufic* script—a term derived from the southern Iraqi town of Kufa. The first bowl reads "amal-i Umar" (the work of Umar),[35] and the other, not entirely legible, appears to read "amal-i al-Akhul [?]" (the work of al-Akhul [?]). The prominence given to the potter's name on these Abbasid bowls is unusual and does not appear on many subsequent wares. The "signatures" may indicate the work of a notable artisan or a celebrated workshop,[36] which presumably would have lent additional value and prestige to ownership of the object. As with the use of calligraphy in other media, the placement of the inscription and its fluid expression strongly suggest that the words served a dual role—they related the name of the potter, but also functioned as an ornamental device, enhancing the aesthetic appeal of the vessels.

Some inscriptions appear more important for their decorative or visual impact than for their semantic value. In the case of the Seljuq luster-painted bowl (cat. no. 40), for instance, the exterior is encircled with a band of mostly illegible words. Such "pseudo-inscriptions" were quite common on Persian ceramics and may have functioned as a visual shorthand for a message whose meaning is no longer evident.[37]

Another use of writing as a decorative device is apparent on one of the beehive covers (cat. no. 48), which is inscribed with a mostly illegible inscription resembling a talismanic design. Several other beehive covers are also decorated with amuletic motifs, such as the hand of Fatima, Duldul, the Prophet Ali's mount, or mosquelike structures.[38] These motifs, more characteristic of Persian vernacular traditions, were intended as a means of securing divine help in certain endeavors. The making of honey enjoyed particular status because of its association with bees, which are singled out in the Koran. According to Emilie Savage-Smith, a manual of magic by the thirteenth-century scientist al-Buni (died 1225) includes specific talismanic designs for beehive covers, which further underlines the importance of these utilitarian ceramic objects.[39]

Figural imagery—idealized human figures pursuing leisurely activities, signs of the zodiac, and real and mythical creatures—represents another common decorative element, particularly in Iran after the establishment of the Seljuq dynasty in the late twelfth century.[40] One of the most curious motifs was the harpy, or human-headed bird *(murgh-i adami)*, which adorns the small Hauge bowl (cat. no. 40). The motif was known in West Asia long before the advent of Islam, and after the twelfth century became an especially popular motif on Persian metalwork, ceramics, and textiles. According to Islamic legends and myths, the harpy is known for its beauty and supernatural powers, and is associated with inaccessible terrains, such as uninhabited islands or mountains at the end of the known world. The *murgh-i adami* was frequently included in enthronement scenes and other representations of royal pastimes, suggesting that it also served as royal guardian and mythical protector of power and rank.[41]

Even though the crowned harpy on the Hauge bowl is depicted alone, it may well have functioned as a familiar, protective symbol to those using the bowl.[42]

Foreign pictorial sources, especially those found on Chinese luxury imports, also played a central role in the development of Persian decorative language. As commercial and diplomatic contacts between China and Iran flourished once again after the mid-thirteenth century, Chinese motifs, such as the dragon, phoenix, or *qilin,* a fantastic winged quadruped, became increasingly popular, even standard images in Persian art. The phoenix, as represented on the molded star tile (cat. no. 44), had a particular resonance for Persian artists because of its affinity to the *simurgh* (literally, "thirty birds"), a mythical bird that plays a central role in much of Persian poetry and literature, including Firdawsi's epic, the *Shahnama* (Book of kings). Highlighted with cut gold leaf, this molded tile is known to have formed part of a larger architectural frieze in the Il-Khanid palace at Takht-i Sulayman. While the image of the soaring simurgh on the tile recalls Chinese models, the lotus flower on a fourteenth-century bowl (cat. no. 45), also inspired by Chinese prototypes, has been completely stylized and transformed into a two-dimensional design that covers the entire surface of the bowl, much like a sumptuous textile design.

Glazing

Unglazed vessels, such as jugs, bowls, and large storage or water jars, were produced in the Islamic world for centuries as simple, everyday wares, while glazed pottery was normally regarded as a luxury commodity. Glazes were applied not only for aesthetic reasons, but also to render vessels impermeable to liquids.

White glazes, inspired by porcelain and stoneware from the Tang dynasty (618–907), were among the earliest to be developed in the Islamic world. Recent scholarship has demonstrated that during the Abbasid period two different glazes were probably used to cover and opacify the buff-colored body of earthenware. One of these glazes included tin—imported from as far away as Malaysia and Burma (Myanmar)—which was combined with lead. Generally referred to as "tin glaze," this mixture also was employed for blue-on-white Abbasid ceramics (cat. nos. 34, 35). Because the glaze and cobalt pigment were fired together, the glaze occasionally absorbed portions of the cobalt, resulting in blurred outlines. Whether an intentional or accidental effect, these designs have been admiringly referred to in modern times as "ink on snow."[43] The high cost of importing tin probably contributed to the development and use of a second opacifying method, known as alkaline glazing, which made use of a glaze made from a mixture of ash, quartz pebbles, and quartz sand. When this mixture was deliberately underfired, some of the particles of quartz were left in suspension and rendered the glaze milky and opaque; when fully fired, the glaze became transparent.[44] On some Abbasid bowls an alkaline glaze was employed on the exterior and a tin-and-lead glaze on the interior, providing the potter with the desired neutral ground.[45]

After the twelfth century, Persian potters relied increasingly on alkaline glazes, which were used in a transparent form or in a variety of hues, especially blue or turquoise, derived from cobalt and copper, respectively (cat. no. 38, fig. 2). Alternatively, pigments could also be painted directly on to the stone-paste body and covered with a clear glaze. At times, part of the base would be left unglazed, allowing a glimpse of the buff-colored body underneath (cat. no. 38).

In northeastern Iran, potters employed yet another method for creating neutral pottery surfaces after the ninth century. They would cover their vessels with slip, a fine clay coating, which was then decorated with different colored glazes, such as ocher (derived from iron), green (from copper), and brown (from manganese), as can be seen on the two Hauge sgraffiato bowls (cat. nos. 36, 37).

Just as the importation of Chinese porcelain led to the development of opacifying glazes in the ninth century, Chinese celadon, known and collected in the Islamic world since the fourteenth century, inspired locally produced green-glazed wares. The characteristic green of Chinese celadon wares results from iron oxide in the glaze and the vessels are fired in reduction. As is evident from the elegant, small Hauge bowl (cat. no. 46), some of the most successful celadon-like vessels were produced in seventeenth-century Iran. While somewhat heavier than their imported prototypes, the glaze closely resembles the green of fine Chinese celadon.

A remarkable contribution of Muslim potters to world ceramics was metal-based "luster" pigments. The process, which lent ceramic surfaces a lustrous, metallic sheen (cat. no. 40), was first employed on ceramics in ninth-century Iraq, after which it spread to Egypt, Iran, Spain, and eventually the rest of Europe.[46] The color of Islamic luster pigments ranged from yellow to a deep red or brown; usually copper yielded a reddish to brown tone, while silver lent a yellow hue.[47] The success of this labor-intensive process depended on several factors, including "the right recipe for pigments, a glaze that softens at the right temperature, and a kiln that has a uniform distribution of heat and flow of gasses that can be precisely controlled for both temperature and atmosphere. Underfiring objects, for instance, resulted in a pale, nonreflective luster stain; while overfiring resulted in a dull, thin luster."[48]

The first step in producing luster was to create the pigments by combining copper and silver. The glaze was then applied to the cold body of a vessel or tile, already covered and fired with an alkaline glaze. The vessel would then be refired in a specially constructed reduction kiln, where the limited air supply produced carbon monoxide that, in turn, extracted oxygen from the metallic oxides, allowing them to adhere to the glaze. Abu'l Qasim maintains that this process took about seventy hours, after which the surfaces would be rubbed with dampened earth to bring out the sheen of the metal oxides. If evenly fired, a luster-painted vessel ". . . reflects like red gold and shines like the light of the sun."[49]

With the growing sophistication of ceramic production in late twelfth- and early thirteenth-century Iran, potters began to paint both over- as well as under-glaze. One such process is called lajvardina. As is evident from the Hauge molded star tile (cat. no. 44), lajvardina wares also could be turquoise in glaze, rather than just cobalt blue as the name implies, and potters would add designs in brown, black, or white pigments over the glaze before firing the piece for a second time. One of the notable characteristics of lajvardina ceramics was the application of gold leaf to the surface. According to Abu'l Qasim, ". . . they hammer . . . red gold into twenty-four sheets, putting paper covered with plaster between them. They cut them carefully with scissors, and stick them with a pen unto the vessels with dissolved glue, and smooth them with cotton."[50] The relatively simple technique created a rich, shimmering surface, which transformed lajvardina vessels and tiles into some of the most sumptuous medieval ceramic wares.

Firing

Since only a few ceramic centers in Iran and Iraq have been systematically excavated and documented, our knowledge of kilns and firing techniques is extremely limited and based primarily on contemporary techniques and a few sites, such as Siraf and Takht-i Sulayman. In general, Muslim potters probably used oval or round updraft kilns, in which the wood from the lower chamber, or furnace, was separated from the upper chamber by a perforated floor. The heat would rise through the perforations into the upper chamber and pass out through holes in the chamber's roof. The type of wood used in the kilns varied from place to place; Abu'l Qasim claims that in Kashan potters used soft woods like walnut or hyssop, the latter a plant with highly aromatic leaves, while in Baghdad and Tabriz willow trees (without the bark, which tended to smoke) were preferred.[51] As wood was not always plentiful in these locations, fuel was also provided by burning dung, olive pits, and grasses.[52] Unlike Chinese porcelain that would turn glass-hard when fired at 1280 °C, earthenware or stone-paste vessels in the Islamic world were fired at lower temperatures: earthenware bodies matured at 1000–1200 °C, stone-paste at a temperature of 1100 °C.[53] In his treatise, Abu'l Qasim describes the firing process as follows:

> . . . for each vessel is made an earthenware case with a fitted lid. These are placed in the kiln . . . this is like a high tower, and inside has row upon row of fired earthenware pegs . . . fitted into holes on the wall. The vessels are placed on them and fired for twelve hours with a hot even fire, with the stipulation that no wood be put on until the smoking has stopped, so that the smoke does not ruin or blacken the pots. . . . The vessels are removed from the kiln after a week [after they had cooled]. [54]

In addition to updraft kilns, special reduction kilns, which produced a smoky atmosphere, were used for production of luster-painted ceramics and tiles. According to Abu'l Qasim, such vessels were placed in a reduction kiln and given light smoke for seventy-two hours, "until they acquire the color of two firings [which is like gold]. . . ."[55]

PRODUCTION

The production of glazed ceramics in the Islamic world was largely associated with urban centers. Little is known about the size and structure of the medieval workshops, but some information can be gleaned from studies of more recent ateliers, as well as from signed and dated objects.[56] The typical workshop was probably under the supervision of a master potter *(ustad),* who employed several apprentices, including members of his own family. For instance, during the Seljuq period in Kashan, at least two families—Abu Tahir and al-Husayn—as well as some seventeen other potters, have been identified with the production of luster-painted ceramics over several generations. As Watson has noted, potters often collaborated on larger projects, such as the celebrated luster tiles for the mihrabs (the niches in mosques or other religious structures indicating the direction of Mecca, toward which Muslims face when praying) in Qum and Mashhad, which were produced by members of the Abu Tahir family.[57] Once a potter's apprenticeship had finished, he would continue to work as a master craftsman in the same place or move to another center and establish his own workshop. The migration of artists and craftsmen appears to have been a relatively common practice, also prevalent among those in other media such as painting, calligraphy, metalwork, and architecture. It has been suggested, for example, that following the fall of the Fatimid dynasty in 1171, Egyptian potters trained in the luster technique moved to Iran,[58] where they introduced their skill to local potters. Similarly, Persian potters introduced tile mosaic to Ottoman Turkey, as is evident from the celebrated 1391 Yeşil Cami (Green Mosque) in Iznik and the mosque of Mehmet I in Bursa, built between 1419 and 1424.[59] Whether they were searching for better markets or had been displaced by war and famine, migrating potters were largely responsible for the dissemination of many ceramic styles and techniques, including blue-and-white ceramics or luster ware throughout much of the Islamic world.

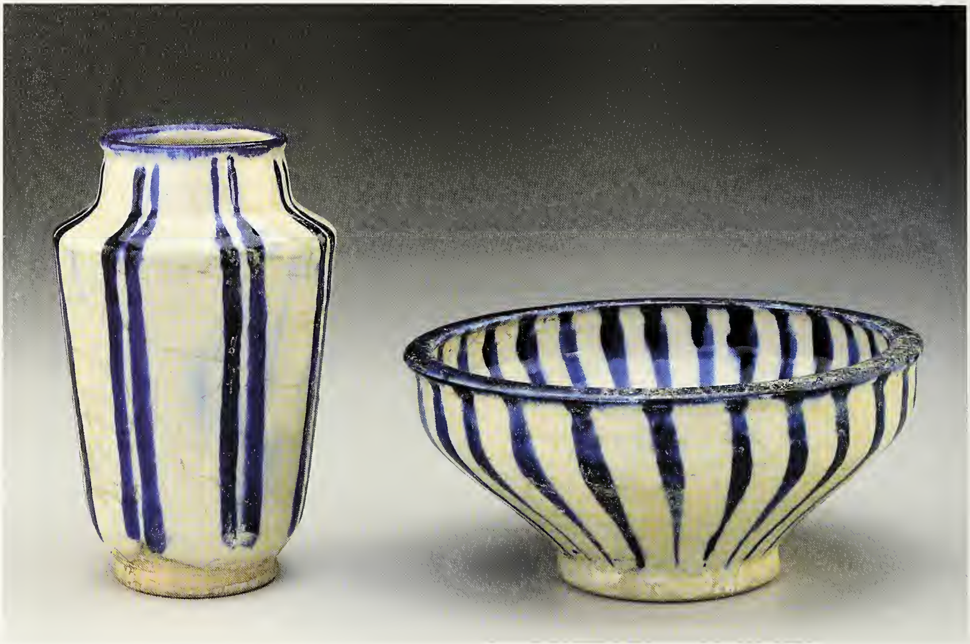
The growing sophistication of ceramic production after the twelfth century also suggests an increased degree of specialization. While inscriptions on Abbasid bowls indicate that the potter was responsible for both throwing and decorating the vessels, the intricate compositions found on many luster-painted ceramics suggest that their decoration was carried out by a painter, one probably active in the potter's same workshop. Such specialization was also evident in the production of luxury manuscripts of fifteenth-century Iran, if not earlier, where calligraphers, painters, illuminators, and bookbinders collaborated on different projects.

Historical sources tend to be mostly silent on the social position of potters in the Islamic world, but the number of signed wares from the Abbasid period suggests that by the ninth century master potters enjoyed considerable status and that their work was valued for its intrinsic artistic and technical qualities. As most of these wares were created ostensibly to be functional, the addition of the maker's name would likely have provided them with marked distinction.

FUNCTION

Both glazed and unglazed ceramics were intended largely for everyday use—storing, washing, eating, and drinking. Meals were generally communal, and the food was served in large vessels, like the deep turquoise bowl (cat. no. 47), which may have been used for soups, stews, or cold drinks. Smaller dishes, such as the twelfth-century footed vessel (cat. no. 39), or the seventeenth-century "celadon" bowl (cat. no. 46), were reserved for condiments, such as yogurt or pickles. Water, wine, and other liquids were served from or stored in bottles and jugs (cat. nos. 38, 43). Some Hauge vessels, such as the sgraffiato bowls (cat. nos 36, 37) or the simple jug and bottle (cat. nos. 38, 43) were perhaps used in more private and informal settings, while other more elaborately designed wares might have been reserved for formal or official occasions. From a modern perspective, most of these vessels are seen as single, discrete objects, but historically they likely were individual parts of larger ensembles, each complementing the other in form, function, decoration, and aesthetic impact. Many were probably also made as parts of sets, such as the bowl and vase (cat. nos. 41, 42) or the two tenth-century sgraffiato vessels (cat. nos. 36, 37).

The decorative schemes on some of the vessels suggest an additional function and importance. For instance, the placement of inscriptions on the two Hauge Abbasid bowls (cat. nos. 34, 35) endow these objects with a distinct directionality, suggesting that they may have been intended for display, or at the very least, for use



41, 42

Cat. no. 41. Bowl, Iran, late 12th–early 13th century, stone-paste painted under glaze, 9.4 x 20.8. Gift of Osborne and Gratia Hauge, S1997.115

Cat. no. 42. Vase, Iran, late 12th–early 13th century, stone-paste painted under glaze, 17.8 x 11.1. Gift of Osborne and Gratia Hauge, S1997.116

on more formal and special occasions. Similarly, the small luster-painted bowl with the design of the harpy (cat. no. 40) also may have been reserved primarily for viewing and contemplation rather than for serving food. If indeed intended for display, it can be argued that many of the vessels, like the harpy bowl, may have been perceived as portable symbols of the owner's wealth, status, and taste.

Similar to ceramic vessels, tiles also were intended for a specific function and used to cover, protect, and above all, embellish both public and private spaces. Displaying a repertoire of figural, epigraphic, or abstract designs, tiles of different shapes and motifs were frequently combined into larger, more complex compositions. Excavations at the Il-Khanid palace at Takht-i Sulayman, for instance, have revealed that in certain rooms star tiles with varying designs, including the simurgh and the dragon, were juxtaposed with cruciform-shaped tiles to create a sumptuous, overall pattern.[60]

While each group of tiles was adorned with a highly intricate design, much like ceramic vessels, the tiles were made in sets and meant to function formally and aesthetically as part of a larger ensemble.

SOURCES OF INSPIRATION

Although the Hauge ceramics from the Islamic world represent a number of different traditions that flourished primarily in Iran and Iraq over a period covering some one thousand years, many of them share a number of underlying formal concepts, ideas, and sources of inspiration. Much of this commonality occurred because glazed luxury ware was largely associated with urban centers, where potters had easy access to both works in other media—likely sponsored by the same urban elite—and luxury imports. This factor played a central role in the development of ceramic shapes, techniques, and decoration throughout much of the Islamic world. Potters continuously drew on both familiar and novel sources to expand and refine their work and meet the social and economic demands of a growing market for new and more sophisticated wares.

The Persian historian Abu'l Fadl Bayhaqi (died 1077) has confirmed the popularity of Chinese porcelain and stoneware in the ninth century by noting that the governor of Khurasan, in northeastern Iran, sent the Abbasid caliph Harun al-Rashid (reigned 786–809) twenty pieces of imperial Chinese porcelain, "the likes of which had never been seen before," as well as two hundred additional porcelain vessels.[61] Excavations at Samarra, Susa, and the port of Siraf further attest to the popularity and abundance of Chinese porcelain in the Islamic world.

As discussed earlier, the Islamic world's fascination with Chinese ceramics persisted for centuries and led to the formation of the two most outstanding collections of blue-and-white and celadon wares outside of China, one assembled in Ottoman Turkey and the other in Timurid and Safavid Iran. While the Ottoman collection has remained in the Topkapi Palace in Istanbul for centuries, the Timurid and Safavid holding was donated in 1612 by Shah Abbas I (reigned 1587–1629) to his ancestral shrine at Ardabil in northwestern Iran.[62] The importation of Chinese celadon, like that of blue-and-white porcelain, probably also stimulated local production of green-glazed ceramics, such as the Hauge bowl (cat. no. 46), which

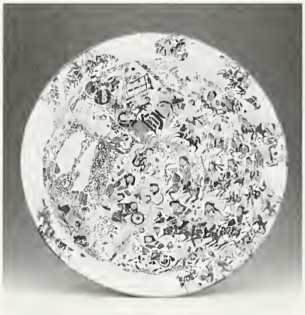


FIG. 3. BOWL, IRAN, EARLY 13TH CENTURY, STONE-PASTE PAINTED OVER GLAZE WITH LUSTER, DIAMETER 47.8. FREER GALLERY OF ART, PURCHASE, F1943.3

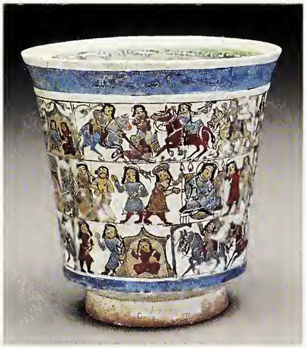


FIG. 4. BEAKER, IRAN, EARLY 13TH CENTURY, STONE-PASTE PAINTED OVER GLAZE WITH LUSTER, 12.0 X 11.2. FREER GALLERY OF ART, PURCHASE, F1928.2

offered a less expensive alternative to the luxury imports.

Some Muslim potters undoubtedly took pride in emulating the plain surfaces and simple sophistication of early Chinese porcelain, but in most instances the impulse to decorate and embellish the vessels was stronger, as demonstrated by the two inscribed Hauge bowls from the Abbasid period (cat. nos. 34, 35). The inscriptions' short verticals and elongated horizontal, for instance, recall ninth-century Koranic calligraphy as well as inscribed textiles, known as *tiraz,* which may have served as models for the style and treatment of the inscriptions on these bowls.[63] Alternatively, calligrapher, weaver, and potter may have all shared the same decorative sources and adapted these to different media.[64]

Although no pre-Mongol illustrated manuscripts from Iran have survived, the complexity of pictorial compositions on Seljuq ceramics, in particular luster ware, suggests that manuscript painters and those specializing in compositions on ceramic probably relied on some of the same intermediaries or visual sources. The design of the elegantly crowned harpy (cat. no. 40), for example, more appropriate for a flat surface than a small, deep bowl, recalls a well-known illustration in the *Maqamat* (Assemblies) by Hariri, dated to 1237 and executed in Baghdad.[65] The close affinity between manuscript illustration and ceramic decoration is further confirmed by two works in the Freer Gallery of Art collection—a large Seljuq plate (fig. 3) depicting a detailed and as yet unidentified battle scene, and a small beaker (fig. 4), representing the full story of Bizhan and Manizha, also of the Seljuq period, which is considered the earliest extant representation of this narrative cycle.[66]

To expand the repertoire of shapes, potters frequently also drew inspiration from metal objects, translating the entire form into clay or selectively adopting certain features. The "faceted" shape of two vessels in the Hauge gift (cat. no. 39 and fig. 2) recalls twelfth-century metal shapes from eastern Iran (Khurasan), while the vessel's "rope" design is another feature found on contemporary Khurasani metalwork.[67]

Whether inspired by imported Chinese porcelain or traditional Persian works in other media, these ceramic vessels are notable for their distinct shapes, techniques, and decorative language, which enhanced their meaning and significance within the social, economic, material, and artistic life of the Islamic world.

NOTES

1. For both a recent critical history of archaeology in the Islamic world and a bibliography, see Stephen Vernoit, "The Rise of Islamic Archaeology," *Muqarnas* 14 (1997): 1–11.

2. The literature on "orientalism," as defined by Edward Said's 1978 influential book *Orientalism* (New York: Pantheon Books) is vast. John M. McKenzie's *Orientalism: History, Theory, and the Arts* (Manchester and New York: Manchester University Press, 1995) provides a thoughtful introduction to some of the issues.

3. Arthur Lane, *Early Islamic Pottery: Mesopotamia, Egypt and Persia* (London: Faber and Faber, 1947), 2–3. Charles Lang Freer (1854–1919) was also an avid collector of Islamic ceramics, in particular Syrian ware from Raqqa with iridescent surfaces, which were actually the result of later surface deterioration. See Thomas Lawton and Linda Merrill, *Freer: A Legacy of Art* (Washington, D.C., and New York: Freer Gallery of Art, Smithsonian Institution in association with Harry N. Abrams, 1993).

4. In 1909, when Gertrude Bell visited Raqqa in Syria, she noted that "the two areas of ruin are strewn with pottery sherds of the Mohammedan period, and over the greater part of the walled city the ground is honeycombed with irregular holes and trenches, the excavations of peasants in search of the now celebrated Rakkah ware." As quoted in Vernoit, "Rise of Islamic Archaeology."

5. Friedrich Sarre, *Die Ausgrabung Samarra* (Berlin: Verlag von Dietrich Reimer, 1925). A large portion of Ernst Herzfeld's papers and notes relating to these excavations are now housed in the archives of the Freer Gallery of Art and Arthur M. Sackler Gallery, Smithsonian Institution.

6. Mehdi Bayani, *Gurgan Faïences* (Cairo: Le Scribe Egyptien, 1949). David Whitehouse's extensive excavations at Siraf were published in a number of archaeological reports and articles during the late 1960s and 1970s. Some deal primarily with ceramics, such as "Islamic Glazed Pottery in Iraq and the Persian Gulf: The Ninth and Tenth Centuries," *Annali* 39 N.S. 29 (1979): 45–61.

7. Ali Baghat and Albert Gabriel, *Fouilles d'Al-Foustât: album de photographies* (Paris: Edition de Boccard, 1921). Also Ali Baghat and F. Massoul, *La céramique musulmane de l'Egypte* (Cairo: L'Institut français d'archéologie orientale, 1930). Another eminent archaeologist who worked on Fustat is George T. Scanlon, whose excavation reports at Fustat were published primarily in the *Journal of the American Research Center in Egypt* in the 1960s. Other related publications on the Fustat finds by G. Scanlon are "Egypt and China: Trade and Imitation," in *Islam and the Trade of Asia,* ed. D. S. Richards (Oxford [Eng.] B. Cassirer and Philadelphia: University of Pennsylvania Press, 1970): 81–95; "The Fustat Mounds: A Shard Count 1968," *Archaeology* 24, no. 3 (June 1971): 220–33; and "Mamluk Pottery: More Evidence from Fustat," *Muqarnas* 2 (1984): 115–27.

8. Arthur Lane, *Later Islamic Pottery: Persia, Syria, Turkey* (London: Faber and Faber, 1957).

9. Geza Feheravari, *Islamic Pottery: A Comprehensive Study Based on the Barlow Collection* (London: Faber and Faber, 1973); Ernst J. Grube, *Islamic Pottery of the Eighth to the Fifteenth Century in the Keir Collection* (London: Faber and Faber, 1976).

10. Notable works are Helen Philon, *Early Islamic Ceramics: Ninth to Late Twelfth Centuries* (London: Islamic Art Publications, 1980); Oliver J. Watson, *Persian Luster Ware* (London and Boston: Faber and Faber, 1985); and Nurhan Atasoy and Julian Raby, *Iznik: The Pottery of Ottoman Turkey* (London: Thames and Hudson, 1989).

11. See note 6 above; and Gülru Necipoğlu, "From International Timurid to Ottoman: A Change of Taste in Sixteenth-Century Ceramic Tiles," *Muqarnas* 7 (1990): 136–70.

12. Lisa Volov [Golombek], "The Plaited Kufic on Samanid Epigraphic Pottery," *Ars Orientalis* 6 (1966): 107–33. Asadullah Souren Melikian-Chirvani, *Les frises du Shah Name dans l'architecture iranienne sous les Ilhan.* Cahier 18 (Paris: Association pour l'avancement des études iraniennes, 1996); Abdullah Quchani, *Katibaha-yi sufal-i Nishapur* [Inscriptions on Nishapur Ceramics] (Tehran: Reza Abbasi Museum, 1986).

13. For patrographic analysis, thin sections of the ceramic body are taken to determine the fabric of ceramics, i.e., the alignment and combination of geological matter, which are believed to be unique at each different site. See, Lisa Golombek, Robert B. Mason, and Gauvin A. Bailey, *Tamerlane's Tableware: A New Approach to the Chinoiserie Ceramics of Fifteenth- and Sixteenth-Century Iran* (Costa Mesa: Mazda Publishers in association with Royal Ontario Museum, 1996). Neutron activation analysis determines the chemical composition groups, i.e., ceramics from the same clay, by bombarding a tiny sample in a reactor. For the use of this scientific methodology, see Scott Redford and M. James Blackman, "Luster and Fritware Production and Distribution in Medieval Syria," *Journal of Field Archeology* 24 (1997): 233–47. I am grateful to Jessica Hallett and Scott Redford for sharing much of this information with me.

14. One of the most successful of such studies is by Jessica Hallett, "Trade and Innovation: The Rise of Pottery in

Abbasid Basra," (Ph.D. diss., Oxford University, 1999).

15. For recent discussion and examples, see Jean Soustiel, "La céramique préislamique et omeyyed," in *La céramique islamique* (Paris: Editions Vilo, 1985).

16. For an excellent discussion on this topic, see Yolande Crowe, "Early Islamic Pottery and China," *Transactions of the Oriental Society* 41 (1977): 263–78.

17. Ibid.; and David Whitehouse, "Some Chinese and Islamic Pottery from Siraf," in *Pottery & Metalwork in T'ang China: Their Chronology and External Relations,* ed. William Watson (London: University of London, Percival David Foundation of Chinese Art, 1971), 30–34.

18. The term "blue-*on*-white" distinguishes this early type of Abbasid wares from "blue-*and*-white" wares, inspired by Chinese blue-and-white porcelain, which became extremely popular after the late fifteenth century throughout much of the Islamic world.

19. For a summary of the arguments regarding the dating and provenance of blue-on-white Abbasid ware, see Philon, *Early Islamic Ceramics,* 2–3; and Alistair Northege and Derek Kennet, "The Samarra Horizon," in *Cobalt and Lustre: The First Centuries of Islamic Pottery,* ed. Ernst Grube (London: The Nour Foundation in association with Azimuth Editions and Oxford University Press, 1994), 23–24.

20. Two of the finest known examples of Samanid epigraphic wares are in the collection of the Freer Gallery of Art; see Esin Atil, *Ceramics from the World of Islam* (Washington, D.C.: Smithsonian Institution, 1973), cat. nos. 8, 12.

21. For a full discussion of this type of ceramic, see Charles K. Wilkinson, *Nishapur: Pottery from the Early Islamic Period* (New York: Metropolitan Museum of Art, 1973).

22. See William Watson, "On T'ang Soft-Glazed Pottery," in *Pottery and Metalwork in T'ang China,* 35–37; *The Dictionary of Art,* s.v. "Iraq."

23. For a description of the technique, see the section on decoration.

24. Oliver J. Watson, *Persian Lustre Ware,* 37–44, 176–82; see Redford and Blackman, "Luster and Fritware Production," 233–36.

25. For a discussion of so-called fourteenth-century "Sultanabad" wares, see Jean Soustiel, *La céramique islamique* (Fribourg: Office du Livre, 1985), 198–200.

26. Michael Rogers, "Ceramics," in the *Arts of Persia,* ed. R. W. Ferrier (New Haven: Yale University Press, 1989), 268.

27. Sotheby's sale catalogue (London, 29 April 1993), lot 98; for other examples, see Ibid., lots 186–196; and Emilie Savage-Smith, "Beekeeping," in *Science, Tools, and Magic,* The Nasser D. Khalili Collection of Islamic Art, vol. 7, pt. 2 (London: The Nour Foundation in association with Azimuth Editions, 1997), 320–23.

28. Hans E. Wulff, *The Traditional Crafts of Persia: Their Development, Technology, and Influence on Eastern and Western Civilizations* (Cambridge: M.I.T. Press, 1966), 152–54.

29. *The Dictionary of Art,* s.v. "Islamic Art (V): Ceramics."

30. For a biography, see *Encyclopaedia Iranica,* s.v. "Abu'l Qasem `Abdallah Kasani."

31. James W. Allan, "Abu'l Qasim's Treatise on Ceramics," *Iran* 11 (1973): 113. The composition of stone-paste is quite similar to that of faience, popular in ancient Egypt and Iran.

32. Oliver J. Watson, *Persian Lustre Ware,* 33.

33. Ibid., 104. One of the best examples of the repeated use of molds is the celebrated luster plate in the Freer Gallery of Art (F1941.11); see Richard Ettinghausen, "Evidence for the Identification of Kashan Pottery," *Ars Islamica* 3 (1936): 62, n. 35. The Hauge collection also includes two identically shaped bowls, one glazed in dark blue and the other in turquoise.

34. Allan, "Ceramics," 112; curiously, Abu'l Qasim also mentions that there is another kind of cobalt that comes from "Farangistan," a term implying the lands of the Franks, i.e., Europe. The two bowls also confirm the use of cobalt in Iran and Iraq long before it was exported to China in the fourteenth century, which allowed Chinese potters to produce blue-and-white porcelain and which would revolutionize the history of world ceramics. Furthermore, they underscore the continuing importance of international trade and commerce in the history of ceramics.

35. Another work by Umar is mentioned in Vera Tamari, "Abbasid Blue-on-White Ware," in *Islamic Art in the Ashmolean Museum,* ed. James W. Allan, Oxford Studies in Islamic Art (Oxford: Oxford University Press for the Board of Faculty of Oriental Studies, University of Oxford, 1995), 135.

36. Grube, *Islamic Pottery in the Keir Collection,* 46; Tamari, "Abbasid Blue-on-White Ware," 135.

37. Tamari, "Abbasid Blue-on-White Ware," 133.

38. For reproductions, see Sotheby's sales catalogue (London, 29 April 1993), lots 186–95.

39. Savage-Smith, "Beekeeping," 204.

40. Richard Ettinghausen, "The Flowering of Seljuq Art," *Journal of the Metropolitan Museum of Art* 3 (1970): 113–31; Oleg Grabar, "The Visual Arts 1050–1350," in vol. 5 of *The Cambridge History of Iran,* ed. J. A. Boyle, 7 vols. (Cambridge: Cambridge University Press, 1968–91), 626–58. For a more recent interpretation of the meaning of figural representation on Seljuq works of art, see Oya Pancaroglu, "The Content and Context of Figural Imagery in the Arts of the Seljuq Period (1100–1300)" (Ph.D. diss., Harvard University, 2000).

41. For an in-depth iconographic and stylistic discussion of this motif, see Eva Baer, *Sphinxes and Harpies in Medieval Islamic Art; an Iconographical Study* (Jerusalem: The Israel Oriental Society, 1965), 51–56; Joachim Gierlichs, *Drache, Phönix, Doppeladler: Fabelwesen in der islamischen Kunst* (Berlin: Gebr. Mann, 1993), 25.

42. For another similar bowl, see Pratapaditya Pal, ed., *Islamic Art: The Nasli M. Heeramaneck Collection, Gift of Joan Palevsky* (Los Angeles: Museum Association of the Los Angeles County Museum of Art, 1973), cat. no. 30.

43. Lane, *Early Islamic Pottery,* 13.

44. Yolande Crowe, "Early Islamic Pottery and China," *Transactions of the Oriental Ceramic Society* 41 (1975–77): 263–75; Alan Caiger-Smith, *Lustre Pottery: Technique, Tradition and Innovation in Islam and the Western World* (London and Boston: Faber and Faber, 1985), 28.

45. Tamari, "Abbasid Blue-on-White Ware," 139–40.

46. It is generally believed that before applying the technique to pottery, luster had been used on glass in eighth-century Egypt. See Caiger-Smith, *Lustre Pottery,* 24–26. Sheila R. Canby, "Islamic Lustreware," in *Pottery in the Making,* eds. Ian Freestone and David Gaimster (London: British Museum Press, 1997), 110–16.

47. Watson, *Persian Lustre Ware,* 31.

48. Ibid., 34–35.

49. Allan, "Abu'l Qasim's Treatise on Ceramics," 114.

50. Ibid., 114–115.

51. Ibid., 114.

52. Jonathan Bloom and Sheila Blair, *Islamic Arts* (London: Phaidon Press, 1997), 53.

53. James W. Allan, *Medieval Middle Eastern Pottery* (Oxford: Ashmolean Museum, 1971), 4.

54. Allan, "Abu'l Qasim's Treatise on Ceramics," 114.

55. Ibid.

56. One of the most useful accounts of a contemporary ceramic workshop is that of the workshop in Yazd (central Iran). See Micheline Centlivres-Demont, *Une communauté de potiers en Iran* (Wiesbaden: L. Reichert; in Kommission bei O. Harrassowitz, 1971); see also Venetia Porter, *Islamic Tiles* (London: Trustees of the British Museum Press, 1995), 10–11.

57. *Encyclopaedia Iranica,* s.v. "Abu Taher."

58. Lane, *Early Islamic Pottery,* 24, 37; Oliver Watson, *Persian Lustre Ware,* 24.

59. See Walter Denny, "Ceramics," in *Turkish Art,* ed. Esin Atil (Washington, D.C.: Smithsonian Institution Press, 1980), 247–51.

60. Elizabeth and Rudolf Naumann, "Ein Kösk im Sommerpalast des Abaqa Chan auf dem Takht-i Suleiman und seine Dekoration," in *Forschungen zur Kunst Asiens; in Memoriam Kurt Erdmann* (Istanbul: Istanbul Űniversitesi Edebiyat Fakültesi Türk ve Islâm Sinati Kürsüsü, 1969), pl. 11.

61. As quoted in Jonathan Bloom and Sheila Blair, *Islamic Art,* 107.

62. The Ardabil collection is now largely in the Iran Bastan Museum (Tehran) and has been published by John Alexander Pope, a former director of the Freer Gallery; see Pope's *Chinese Porcelain from the Ardebil Shrine* (Washington, D.C.: Freer Gallery of Art, Smithsonian Institution, 1956); for the Topkapi Saray Palace collection, see Regina Krahl in collaboration with Nurdan Erbahan, *Chinese Ceramics in the Topkapi Saray Museum,* ed. J. Ayers, 3 vols. (London: Sotheby's Publication in association with the Directorate of the Topkapi Saray Museum, 1986); in a recent article John Carswell has discussed a third collection that survived in Syria; see "China and the Middle East," *Oriental Art* 45, no. 1 (1999), 2–14.

63. Tamari, "Abbasid Blue-on-White Ware," 135.

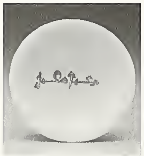
64. Gülru Necipoğlu's ground-breaking study of the so-called Topkapi scroll, which she has dated to the Timurid period, illustrates the use of drawings for tile design and architetural inscriptions; see Gülru Necipoğlu's *The Topkapi Scroll: Geometry and Ornament in Islamic Architecture: Topkapi Palace Library MS H.* 1956 (Santa Monica: Getty Center for the History of Art and Humanities, 1995).

65. Richard Ettinghausen, *Arab Painting,* 2d ed. (Geneva: Albert Skira, 1977), 122. The manuscript is now in the State Public Library in St. Petersburg, Russia.

66. For illustration, see Atil, *Ceramics,* nos. 50 and 44; see also Marianna Shreve Simpson, "The Narrative Structure of a Medieval Iranian Beaker," *Ars Orientalis* 12 (1981): 15–24.

67. For illustrations and discussion of related Seljuq metalwork, see Asadullah Souren Melikian-Chirvani, *Islamic Metalwork from the Iranian World 8th–18th Centuries* (London: Her Majesty's Stationery Office, 1982), chap. 2 "The late Khorasan School" and chap. 3 "Western Iran and Fars in the 13th and 14th Centuries"; for illustration of the rope design, see Rachel Ward, *Islamic Metalwork* (London: The Trustees of the British Museum, 1993), no. 22.

CATALOGUE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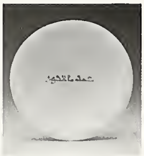
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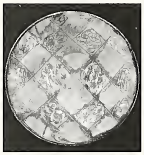
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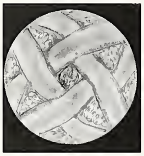
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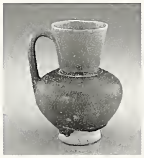
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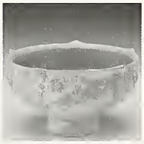
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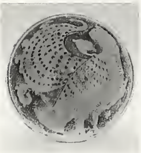
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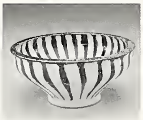
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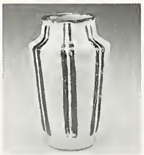
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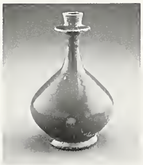

43

34 Bowl
Probably Iran
9th–10th century
Earthenware painted under glaze
4.2 x 14.0
Gift of Osborne and Gratia Hauge
S1997.108

35 Bowl
Probably Iran
9th–10th century
Earthenware painted under glaze
6.3 x 22.5
Gift of Osborne and Gratia Hauge
S1997.109

36 Bowl
Iran
10th century
Earthenware painted and incised under glaze
6.8 x 22.6
Gift of Victor and Takako Hauge
S1997.127

37 Bowl
Iran
10th century
Earthenware painted and incised under glaze
8.3 x 21.1
Gift of Victor and Takako Hauge
S1997.128

38 Jug
Iran, probably Kashan
12th century
Stone-paste painted under glaze
16.7 x 13.9 x 12.8
Gift of Osborne and Gratia Hauge
S1997.118

39 Bowl
Iran
12th century
Stone-paste painted under glaze
12.5 x 19.5
Gift of Osborne and Gratia Hauge
S1997.119

40 Bowl
Iran, probably Kashan
Late 12th century
Stone-paste painted over glaze with luster
7.8 x 17.3
Gift of Osborne and Gratia Hauge
S1997.113

41 Bowl
Iran
Late 12th–early 13th century
Stone-paste painted under glaze
9.4 x 20.8
Gift of Osborne and Gratia Hauge
S1997.115

42 Vase
Iran
Late 12th–early 13th century
Stone-paste painted under glaze
17.8 x 11.1
Gift of Osborne and Gratia Hauge
S1997.116

43 Bottle
Iran
12th–13th century
Stone-paste painted under glaze
18.9 x 12.4
Gift of Osborne and Gratia Hauge
S1997.117

44 Tile
Iran, Takht-i Sulayman
14th century
Stone-paste painted and gilded under glaze
20.9 x 21.3 x 2.0
Gift of Osborne and Gratia Hauge
s1997.114

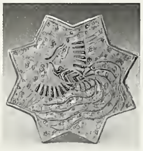
45 Bowl
Iran
14th century
Stone-paste painted under glaze
10.0 x 21.2
Gift of Victor and Takako Hauge
s1997.129

46 Bowl
Iran
17th century
Stone-paste painted under glaze
7.2 x 15.3
Gift of Victor and Takako Hauge
s1997.130

47 Bowl
Iran, probably Kirman
18th or 19th century
Stone-paste painted under glaze
20.6 x 37.9
Gift of Osborne and Gratia Hauge
s1997.121

48 Beehive cover
Iran
Dated 13[0]2/18[8]4–[8]5
Stone-paste painted under glaze
1.4 x 23.0
Gift of Osborne and Gratia Hauge
s1997.122

49 Beehive cover
Iran
Late 19th–early 20th century
Stone-paste painted under glaze
1.5 x 22.1 x 22.1
Gift of Osborne and Gratia Hauge
s1997.124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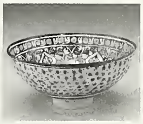
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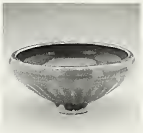
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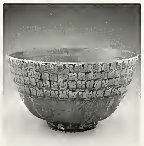
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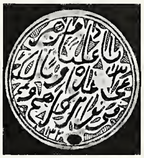
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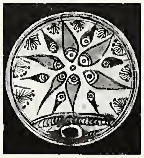
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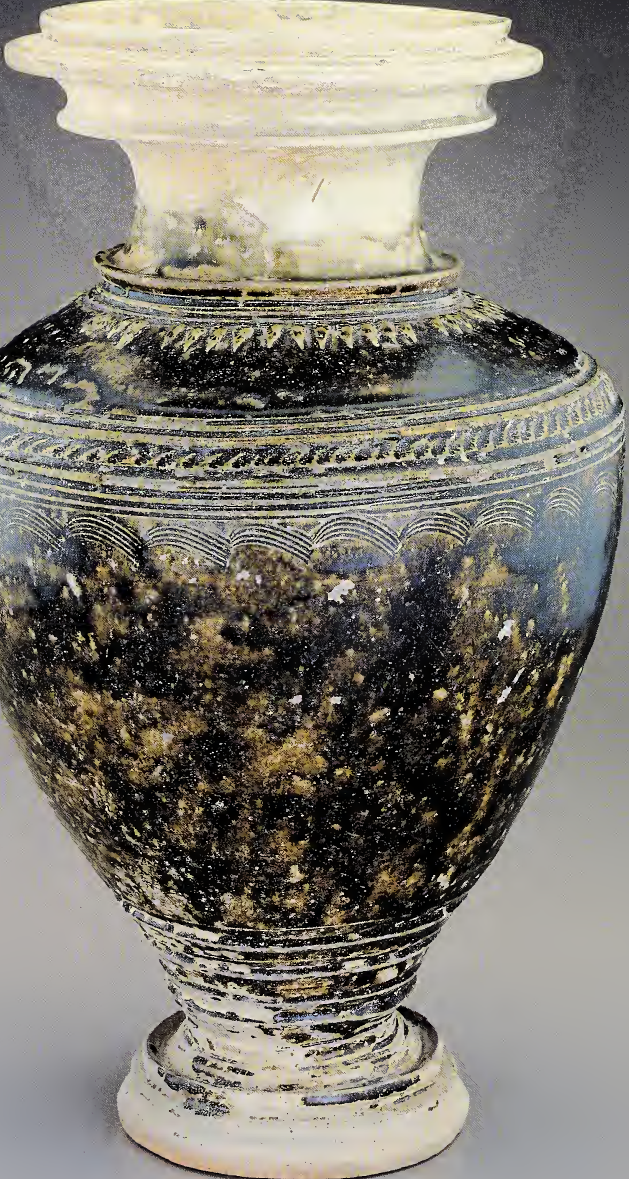


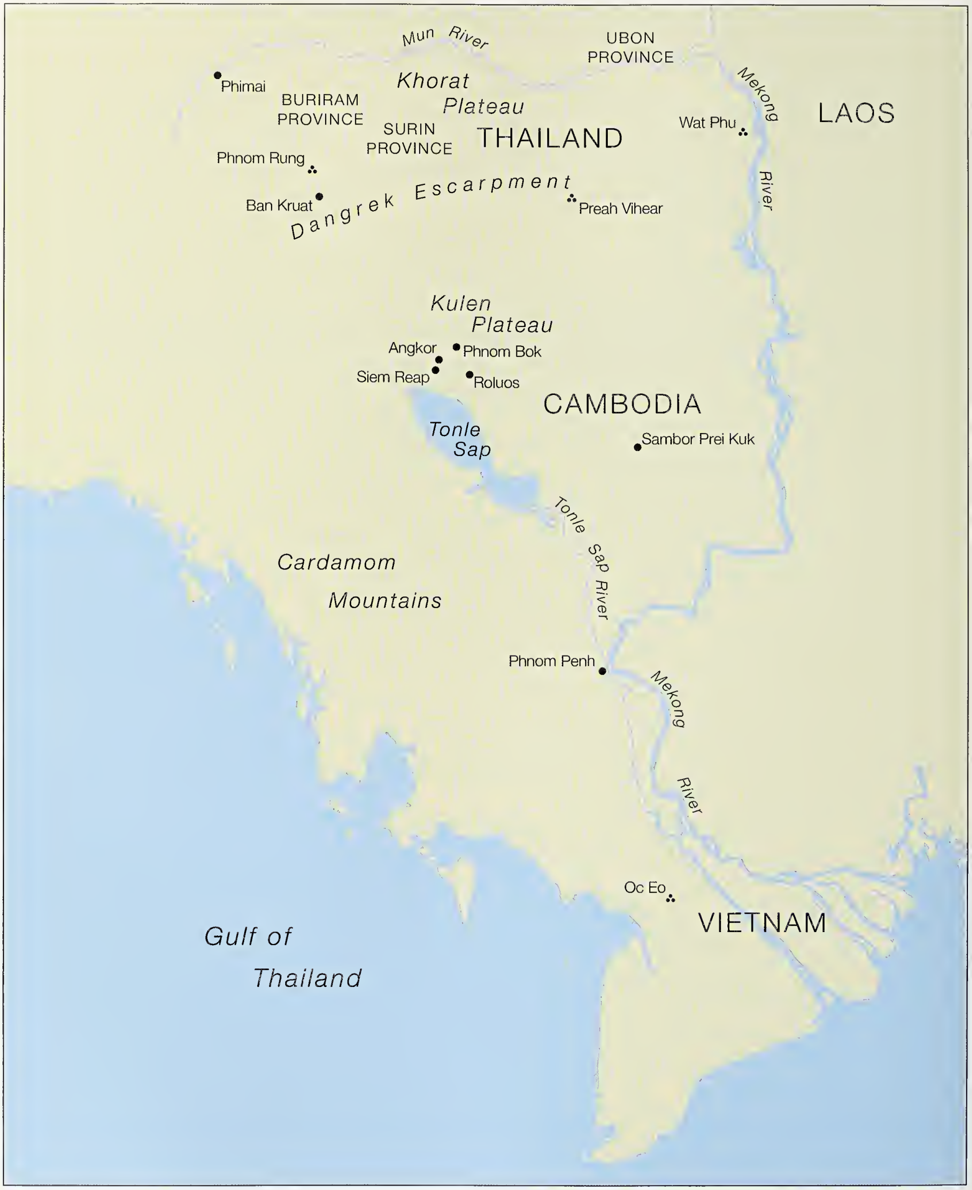
Khmer Stoneware Ceramics

Louise Allison Cort

THE BODY OF CERAMIC WARES we know as "Khmer ceramics"—high-temperature stonewares, glazed for the most part, in a limited repertory of distinctive shapes—is a product of the Khmer Empire, a centralized religious, political, and economic entity based in the Angkor region in what is now northwestern Cambodia, which dominated a large area of mainland Southeast Asia from the ninth through the fourteenth century. The boundaries of the Khmer state were fluid, and it prevailed not simply by forceful conquest but by the compelling example of its elaborate cultural system of stone temple-mountains and related religious and royal ritual, of walled cities, of reservoirs and canal systems for water management, and of regional networks of roads and public works, presided over by a ruler who was both a religious and a political leader. This distinctive entity is sometimes described by the Sanskrit term mandala (a hierarchical representation of the universe in circular form)—not a "state" with clearly defined borders but a sphere of influence, organized around a ruler and his court in his capital and held together by alliances with other lords. Other Southeast Asian mandalas included Champa in what is now Central Vietnam and Pagan in northern Burma (Myanmar), but no other entity in medieval Southeast Asia rivaled Angkor in terms of scale. The dates for the period of Khmer dominion are usually defined by the proclamation by the ruler Jayavarman II of his "universal kingship" in 802 and the partial abandonment of Angkor as capital in 1431; Khmer authority had already been severely challenged by the thirteenth century.[1]

The natural landscape of the core Khmer domain consisted of broad open plains framed by the Dangrek Escarpment to the northwest and the Cardamom Mountains to the southwest and dotted by

CAT NO. 66. BALUSTER-FORM JAR WITH TWO-COLOR GLAZE, PROBABLY THAILAND, BURIRAM PROVINCE, 11TH–12TH CENTURY, BROWN STONEWARE WITH IRON GLAZE, 44.3 X 27.3, GIFT OF OSBORNE AND GRATIA HAUGE, S1996.112



Mun River
UBON PROVINCE
Phimai
Khorat Plateau
Mekong
BURIRAM PROVINCE
LAOS
SURIN PROVINCE
Wat Phu
THAILAND
Phnom Rung
River
Ban Kruat
Dangrek Escarpment
Preah Vihear
Kulen Plateau
Angkor
Phnom Bok
Siem Reap
Roluos
CAMBODIA
Tonle Sap
Sambor Prei Kuk
Tonle Sap River
Cardamom Mountains
Phnom Penh
Mekong River
Oc Eo
VIETNAM
Gulf of Thailand

freestanding hills. The capital city of Yasodharapura (now known as Angkor, from the Sanskrit *nagara,* "city") was watered by a river system originating in springs on the Kulen Plateau to the northeast, and was located strategically near the Tonle Sap Lake, the annual recipient of the overflowing waters of the Mekong River system in the delta, when the Tonle Sap River reverses course, flows back, and quadruples its dry-season size. The Khmer skill in sculpting this natural landscape and harnessing the water systems, through construction of dikes and reservoirs to create a source of irrigation for wet-rice agriculture, became a basis of claim to royal power.

Archaeology, inscriptions in Sanskrit and Khmer, and records left by Chinese visitors sketch the process whereby the Angkorean polity gradually took form. In the late prehistoric period, the region was dotted by settlements surrounded by circular or irregular earth walls and moats, which served as local political centers for dispersed smaller farming villages. Gradually these politicoeconomic units coalesced into larger clusters, especially as certain of them, favorably situated along the coast, were drawn into patterns of international ocean-based trade. The site now known as Oc Eo on the Mekong Delta appears to have been an early trading center where natural products from the hinterlands were exchanged for luxury goods whose origins ranged from the Roman Empire through India to China. Records left by the Chinese of their contacts in this region during the third through sixth century describe an entity they called Funan in the Mekong Delta and southern Cambodia, while later records use the name Zhenla to refer to the inland area. These place names, understood by the Chinese as "states," masked the reality of a number of local polities vying for power and gradually coalescing into larger units. Chinese texts describe the centers of the Khmer-speaking mandalas of "Zhenla" as spacious walled cities ruled by men using Sanskritic titles and enclosing sacred precincts with temples to Hindu deities whose rituals were conducted by self-styled brahmin priests.

In 802, a Khmer-speaking ruler named Jayavarman II claimed authority over his rivals during a consecration ceremony held on the Kulen Plateau. Jayavarman II and his successors ruled Angkor over the next six centuries from a series of cities on the plains southwest of Phnom Kulen. The traces that survive of these once-thriving centers are the sacred monuments, palaces, and gated walls built at first of brick and stone and later entirely of stone—mountains of stone—and the earthworks, notably a series of rectangular pools (*baray*) of increasingly grand scale and a system of long, arrow-straight roads that radiated outward from the center. (Countless other structures built of organic material, including the royal palace, have disappeared.) Khmer sacred rituals incorporated elements of local cults, South Asian Hinduism, and Buddhism. Many Khmer rulers identified Shiva as their patron deity; others chose Vishnu; and some rulers were followers of Mahayana Buddhism. The Angkor state mobilized human power and wealth to build the great public works that gave material form to the concept of the ruler as guardian of his ancestral lineage and of the agricultural cycle and of the capital city as the Vedic god Indra's heaven. Each ruler's essential duties commenced with erecting temples—sacred mountains—to his ancestors and to his tutelary deity. As the locus of the capital shifted several times in the early centuries, the landscape gradually filled with a topography of sacred mountains, natural and constructed. Later Angkor-based kings measured the reach of their influence by erecting new buildings on ancient sacred sites such as Wat Phu in southern Laos, Preah Vihar on the edge of the Dangrek Escarpment, and Phnom Rung on a volcanic cone in Buriram Province, Northeast Thailand. Visible from great distances across the otherwise flat terrain, these mountains are counterparts of the sacred mountains in Hindu mythology that came to be mapped on the Angkorean landscape.

The peak of building enterprises that occurred during the rule of the Buddhist ruler Jayavarman VII (reigned 1181–1219) took place in a "frenzy to conquer and construct."[2] Following immediately upon the successful rebuff of an invasion of the capital by warriors of the Cham mandala in what is now Vietnam, Jayavarman VII's reign saw the construction of twelve kilometers of new gated walls around the royal city of Angkor Thom, the temple of the Bayon at its center, and many other monuments in both the capital and the provinces. After Jayavarman VII's reign, until the partial abandonment of the capital in 1431, no new major monument was built in stone, although many were completed, restored, or built in wood. To the west, the mandalas of Sukhothai and Ayutthaya arose to challenge Angkorean dominance both militarily and culturally. Siamese troops raided Angkor on several occasions. Theravada Buddhism (the state religion of the Siamese), spread through missionaries prior to the invasions, gradually took hold of the spiritual lives of the Khmers.

The evolution of Khmer glazed stoneware ceramics seemingly follows closely that of the Angkorean mandala, probably not coincidentally if the ceramic forms are seen to be largely ritualistic in function. Glazed stoneware formed a category of vessel used in the rituals within religious monuments as well as in individual homes. It also played a role in social rituals among the ruling elite. The high degree of centralized organization supported the development and expansion of centers for ceramic production, and it would appear that in the twelfth and thirteenth centuries ceramics were transported long distances over the Khmer roadway system to supply all corners of the Angkorean domain with vessels of standard and time-honored form. With the weakening of this cultural energy, especially with the transformation of religious ritual following the acceptance of Theravada Buddhism, the main purpose of Khmer glazed ceramics was exhausted and the skills needed for making them died out. During the six centuries or more of its production, however, it constituted a distinctive repertory of form and glaze.

THE REGIONAL TRADITION
Stoneware and Earthenware

The Khmer ceramic objects presented here must be considered a highly specialized and relatively short-lived tradition imbedded in—preceded by, surrounded by, and succeeded by, up to the present day—a matrix of a far more prolific production of earthenware. French archaeologists Bernard Philippe Groslier and Roland Mourer have been among the few to acknowledge the fundamental importance of this relationship; their participation in Cambodian excavations prior to 1975 made it obvious to them.[3] For the most part attention has focused exclusively on the glazed stoneware vessels although, as both Cambodian and foreign scholars resume field research in the region, this is changing rapidly.

Earthenware in Cambodia, as in other places where high-temperature wares have also been produced, is a separate but parallel ceramic tradition. Earthenware is not the "origin" of stoneware—the two media have different properties and different goals. Earthenware, with the properties of porosity and resistance to thermal shock, has consistently been used for the basic tasks of cooking and of water

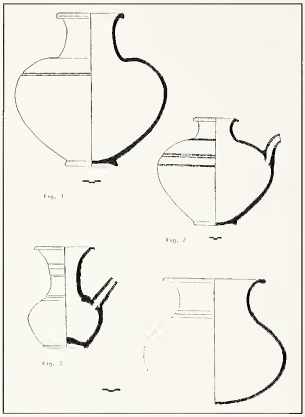
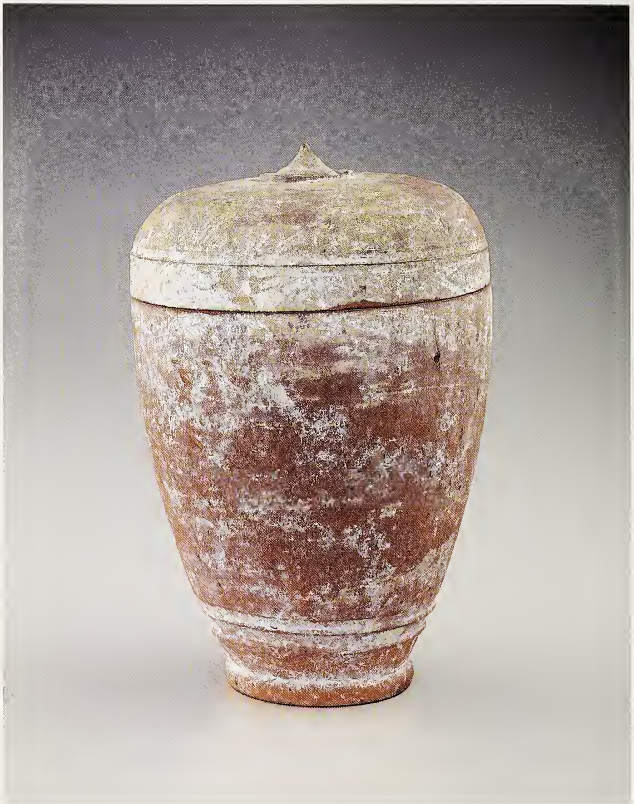


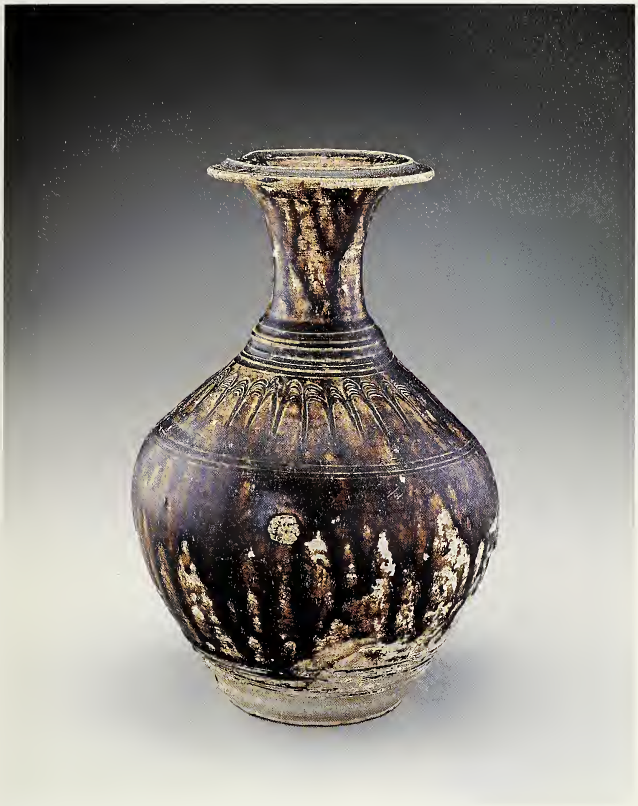
Fig. 1. Wheel-thrown earthenware vessels from Sambor Prei Kuk, 6th–7th century. After drawing by Bernard Philippe Groslier in Mourer, *La Poterie au Cambodge*.



53

Cat. no. 53. Cylindrical lidded vessel with pointed knob, probably Thailand, Buriram Province, 11th–12th century, earthenware with traces of white coating, 18.8 x 12.7. Gift of Victor and Takako Hauge, S1996.167

transport and cooling. For the most part Cambodian earthenware is made today by efficient handbuilding processes, including use of a paddle and anvil to finish the slab-built form and produce a strong, lightweight, round-bottomed vessel, which has been fired in bonfires sufficient to produce the desired permeable hardness. From the late sixth through the eighth century in the Angkor region, however, some earthenware vessels were made by throwing on the fast potter's wheel (fig. 1).[4] The use of the wheel thus appears to precede the earliest production of wheel-thrown, glazed, kiln-fired, high-temperature stonewares in (perhaps) the ninth century. Two wheel-thrown



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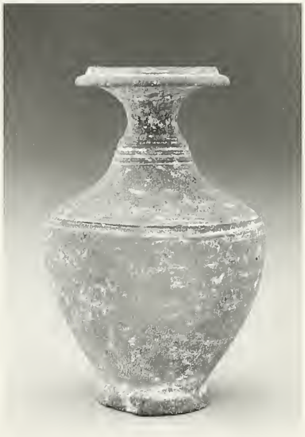


Fig. 2. Bottle, probably Thailand, Buriram Province, Angkorean period, 11th–12th century, earthenware with traces of white coating, 15.2 x 10.4. Arthur M. Sackler Gallery, gift of Victor and Takako Hauge, s1996.183

Cat. no. 73. Bottle, probably Thailand, Buriram Province, 12th–13th century, brown stoneware with iron glaze, 28.7 x 20.0. Gift of Osborne and Gratia Hauge, s1996.113

earthenware vessels, made at a later point in the tradition, when stoneware was also made, are included in this collection (cat. no. 53, fig. 2). They are fired close to vitrification, suggesting that firing was probably carried out not in a bonfire but in an updraft kiln.[5] Such wheel-thrown vessels seemingly were associated with ritual use, in contrast to the largely domestic functions of the handformed vessels. The sixth-century examples, which bore slipped and painted decoration, were excavated from a burial pit and had been deliberately damaged before burial, so that they could not be reused. The shapes of those large, flat-bottomed vessels were modeled after forms famil-

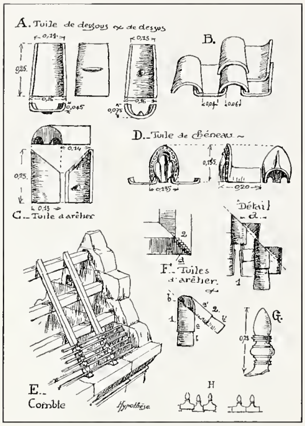


Fig. 3. Varieties of Khmer roof tiles and ornaments and their installation. After A. Silice and G. Groslier, "La Céramique dans l'Ancien Cambodge (Essai d'Inventaire Général)," *Arts et Archaéologie Khmers*, vol. 2 (1924–26), 42

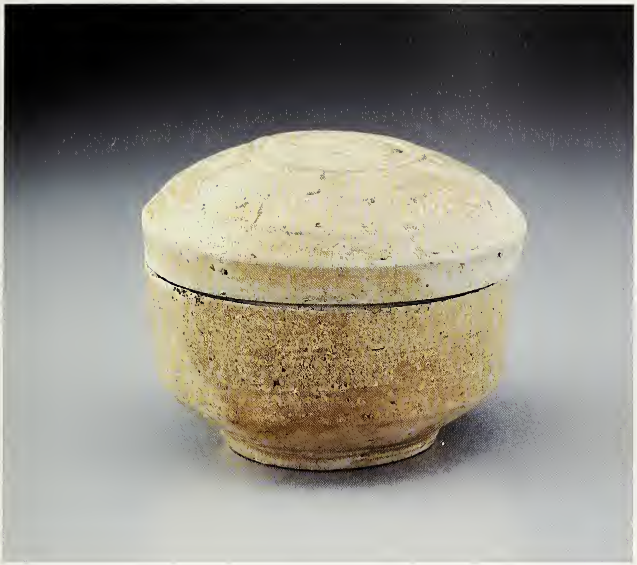
iar in the repertory of South Asian metal and clay vessels.

An important component of the early production of stoneware, although not represented in this collection, is unglazed stoneware. Such wares have now been identified at recently discovered early kilns on the plains east of Angkor, assumed to have been active during the tenth and eleventh centuries. The most numerous shapes are large basins and bottles with elongated necks, ornamental "collars," and everted, dish-shaped mouths.[6] This bottle shape endures throughout the Angkorean period and is executed in glazed stoneware and wheel-thrown earthenware (cat. no. 73, fig. 2). Unglazed stoneware roof tiles and roof ornaments were also fired at these kilns. The use of glaze on stoneware can thus be understood as an aesthetic augmentation. The glazed stonewares presented here should be imagined in a setting of complementary and/or alternative vessels made of earthenware, unglazed stoneware, and metal.

The Repertory of Shapes

The role of the stoneware workshops in supplying glazed roof tiles for religious and ruling-class buildings was an enduring one and needs to be taken into account for a complete understanding of glazed stoneware production, although tiles are not represented in this collection. The forms included simple half-cylinders used for covering the roof surfaces in interlocking rows, end tiles with mold-formed decorations for the lower edges of such rows, and finials for the roofline (fig. 3). As an illustration of the quantities required, fifteen hundred glazed end tiles were excavated during the recent French investigations of the royal palace site within Angkor Thom. Glazed tiles and finials were collected from the purported kiln site on Phnom Kulen early in this century and again in 1999. Glazed and unglazed stoneware tiles were produced at the kilns on the plains east of Angkor as well as at the kilns in what is now Northeast Thailand.

Khmer glazed stoneware vessels occur in a limited repertory of forms. Because we do not know the contemporaneous Khmer terms for these shapes, we cannot begin to understand how their users divided and categorized them conceptually. Here we will summarize them according to form, while also taking into account associated glaze color and the relationship of the form to Indian or



50

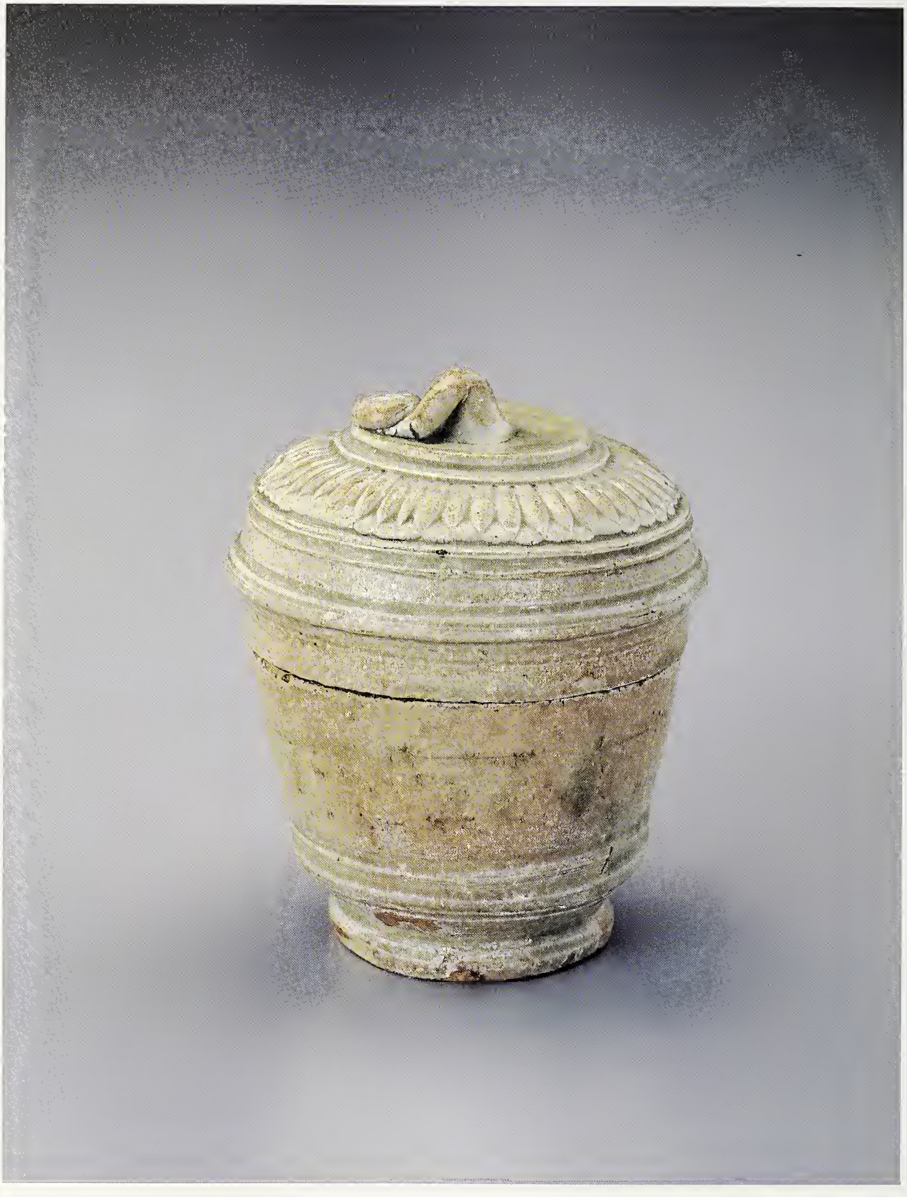
Cat. no. 50. Cylindrical box with domed lid, probably Cambodia, Siem Reap Province, 10th century, white stoneware with ash glaze, 10.5 x 14.0. Gift of Osborne and Gratia Hauge, s1996.152

Chinese vessels. Understanding which vessel forms were most numerous must await the excavation of more kiln sites.

Ash-glazed covered boxes in compressed spherical form appear among the earliest known glazed Khmer stonewares. Their forms show an evolution of Chinese inspiration from late Tang dynasty (ninth century) Yue ware (cat. no. 50) to fruit- or vegetable-shaped pieces inspired by twelfth-century Song dynasty porcelains (cat. no. 80).

Another early and enduring form is the lidded urn—a cylindrical box with a lid bearing a knob in the form of a pointed cone (cat. no. 53) or of a lotus bud or seed-pod or other vegetal motif (cat. no. 51). Large, plain versions of these vessels are known with both ash and iron glazes as well as in earthenware.

Bowls with broad, flat bases and flaring walls that are either straight or slightly concave, ending in plain everted or incurving rims, are closely associated with ash glaze (cat. nos. 63, 70). Some versions bear narrow bands of incised lines just below the rim. Most have deep flanges above the base, but some are plain. These bowls



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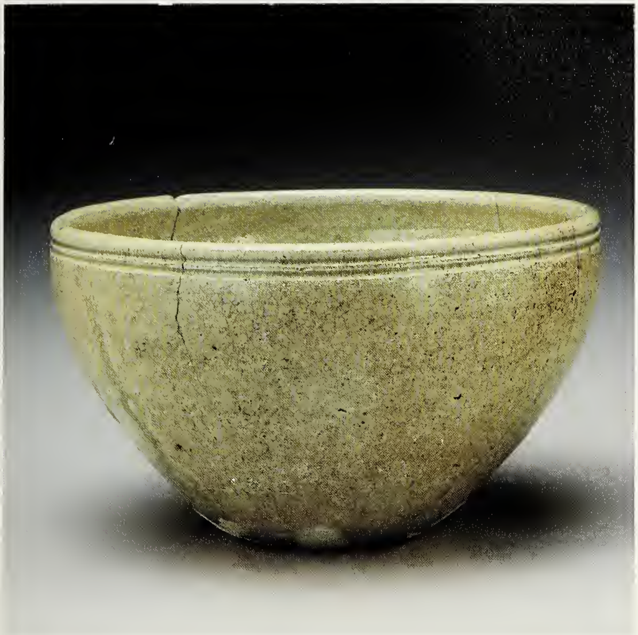

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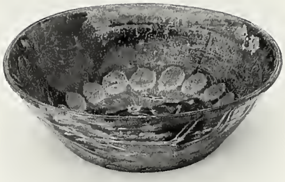


Fig. 4. Bowl. China, southeastern region, Tang dynasty (618–907). Stoneware with green glaze, scars of clay wads used for setting, 6.2 x 18.2. Freer Gallery of Art, gift of Charles Lang Freer, F1917.213

are quite dissimilar to the classic Chinese bowl form, with narrow carved foot and everted rim (although some Khmer versions of this form have been excavated from Northeast Thai kilns), but a resemblance can be seen to a utilitarian bowl in the Freer collection (fig. 4), thought to be from a southeastern Chinese kiln, possibly in Zhejiang Province, and to date to the Tang dynasty (618–907). Like the Khmer ash-glazed bowls, this Chinese bowl was fired in a stack of identical ones, separated by a ring of clay wads that have left scars in the glaze.

Iron-glazed bowls are much less common and their forms are different (cat. no. 64). Small hemispherical cups on button bases also bear brown glaze (cat. no. 71).

A particularly puzzling bowl form, whose probable use is much debated, has a pedestal base and a short, mushroom-shaped stand rising from the center of the bowl (cat. no. 72). Most versions of this form bear iron glaze, although the stand and pedestal foot are typically unglazed. Another type of bowl on pedestal foot has an

Cat. no. 51. Cylindrical lidded vessel with lotus seed-pod knob, probably Cambodia, Siem Reap Province, 10th–11th century, light gray stoneware with ash glaze, 8.6 x 7.5. Gift of Victor and Takako Hauge, S1996.165

Cat. no. 70. Bowl with incised lines, probably Thailand, Buriram Province, 11th–13th century, white stoneware with ash glaze, 9.3 x 15.7. Gift of Victor and Takako Hauge, S1996.175

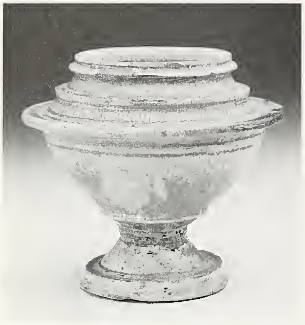
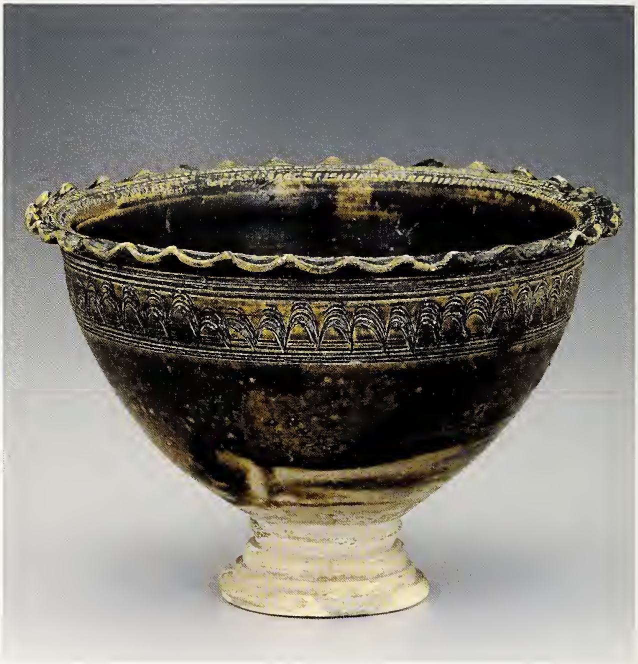


Fig. 5. Offering bowl, probably Thailand, Buriram Province, Khmer kiln complex, Angkorean period, 11th–12th century, white stoneware with ash glaze. 14.3 x 16.1. Arthur M. Sackler Gallery, gift of Victor and Takako Hauge, s1996.164

Cat. no. 72. Pedestal bowl with interior stand, probably Thailand, Buriram Province, late 11th–12th century, brown stoneware with iron glaze, 13.4 x 19.6. Gift of Osborne and Gratia Hauge, s1996.121.1



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inverted conical body, wide flange at mid-point, and tapering conical shoulder; Groslier believed it was an offering dish (fig. 5).[7]

Bottles, jars, and vats (closed vessels with neck diameters ranging from tightly constricted to wide) of various sizes and shapes compose the largest category of Khmer glazed stonewares. Small bottles with squat, rounded bodies, narrow necks, and heavy beveled rims appear among the earliest-known Khmer ash-glazed stonewares (fig. 6). This form seems to persist and is joined by other small bottle shapes as well (cat. no. 52). Among iron-glazed bottles, one distinctive form is the squat, lenticular form with short neck (cat. no. 69). It is large enough to require holding with two hands for pouring. Another representative bottle form with a flat base, low center of gravity, sloping shoulders, swollen decorative band below the elongated neck, and everted rim, appears in early unglazed stoneware versions and continues in both iron-glazed stoneware (cat. no. 73) and earthenware (fig. 2) versions, in a range of sizes. Some later bottles of this type have pedestal bases.

The smallest jar forms in the Hauge collection are wheel-thrown containers whose pyramidal forms, finished by conical lids, might be interpreted as lotus buds (cat. nos. 55, 56). They come in both ash- and iron-glazed versions.

Perhaps the most characteristically Khmer type of jar, usually in larger sizes, is distinguished by a pedestal base balanced by a wide, multitiered everted rim, with wide shoulder contrasting to narrow neck and foot—a form sometimes described as a "baluster jar." The Hauge collection contains examples of this form in iron glaze (cat. no. 65) and in two-color format (cat. no. 66). Closely related are ewers—baluster jar forms with the addition of a short, nearly vertical spout on the shoulder (cat. nos. 67, 68).

The pedestal-foot jars and ewers have quite clear associations with South Asian vessel forms. A separate category of jar, with wide, flat base and short neck with simple rim, seems related, by contrast, to Chinese Song dynasty jar forms of the twelfth and thirteenth centuries made with iron or *qingbai* (pale blue) glaze (cat. no. 82). The Khmers were familiar with both versions. An iron-glazed jar from the Foshan kilns in Guangdong Province, was excavated from the Sras Srang cemetery site in Angkor, while an ash-glazed Khmer jar with four lugs on the shoulder in the collection of the Wittayakan School in Ban Kruat District, Buriram Province, is a close copy of a *qingbai* jar.

Large, barrel-shaped jars or vats have flat bases, wide mouths, short necks, and flattened everted rims (cat. nos. 74, 75). They occur only in iron-glazed versions.

Two related categories of vessel that seem to have no relationship to non-Khmer cultural forms are the zoomorphic vessels and anthropomorphic bottles. The zoomorphic vessels, which correspond to Khmer forms in precious metals or bronze, are commonly small enough to fit in the palm of the hand; they are either hand-pinched or wheel-thrown rounded containers, with small, plain openings on the upper surface, usually the animal's "back." Judging from surviving metal versions, these openings were fitted with lids. A combination of incised and applied decoration renders animals including elephants, horses, rabbits, cats, anteaters, birds, frogs, and

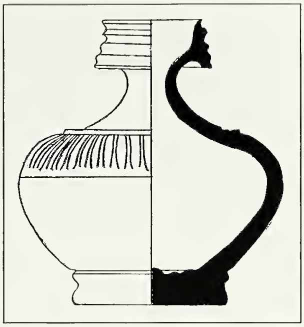
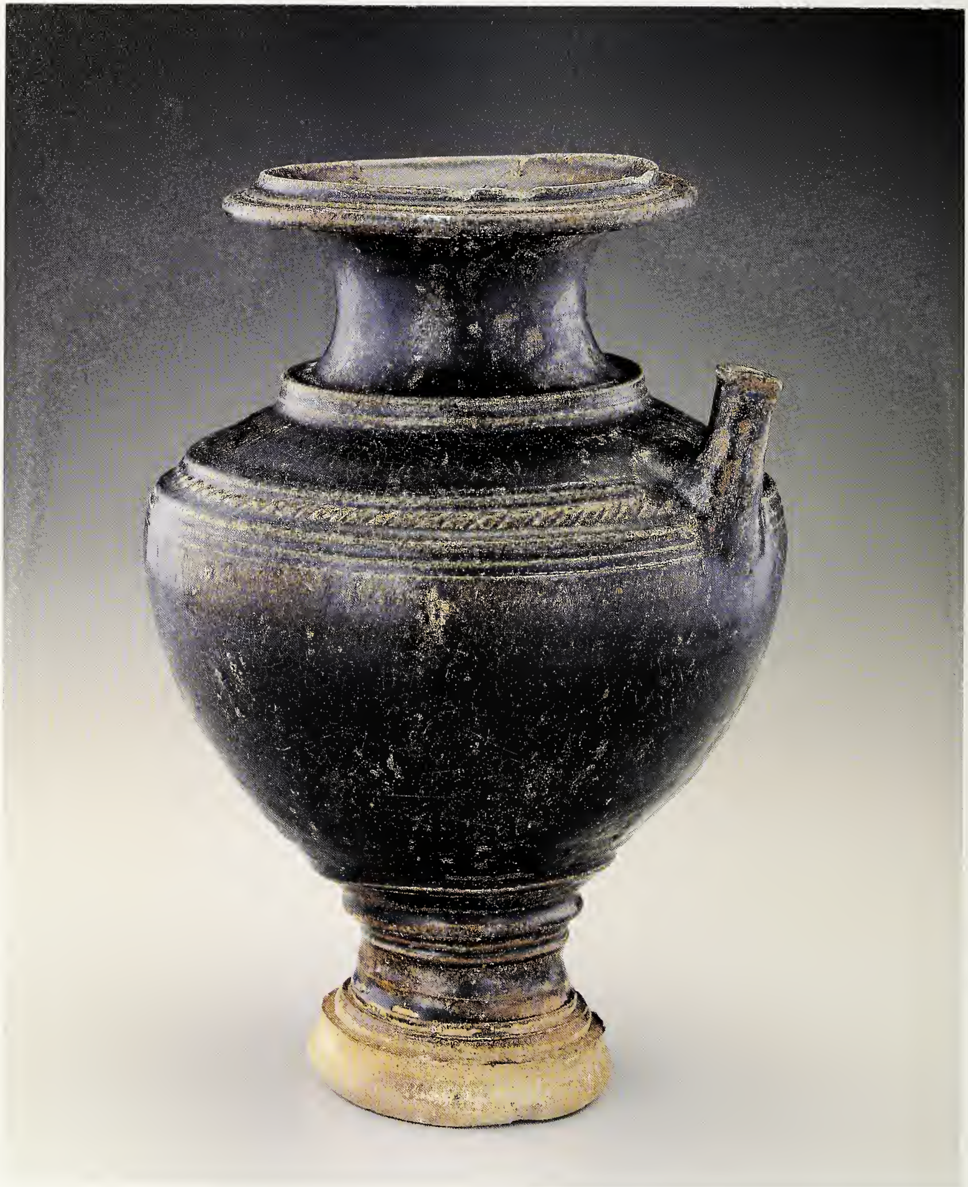


Fig. 6. Measure drawing of jar found on Phnom Kulen, Cambodia, in 1920. White stoneware with ash glaze. H. 11.0 cm. National Museum of Cambodia, H. 42, H. 44, 2

(following pages)

Cat. no. 67. Ewer, probably Thailand, Buriram Province, 11th–12th century, brown stoneware with iron glaze, 28.7 x 20.9 x 19.9. Gift of Osborne and Gratia Hauge, s1996.118

Cat. no. 82. Jar, probably Thailand, Buriram Province, 12th–13th century, brown stoneware with iron glaze, 34.1 x 30.9. Gift of Victor and Takako Hauge, s1996.157



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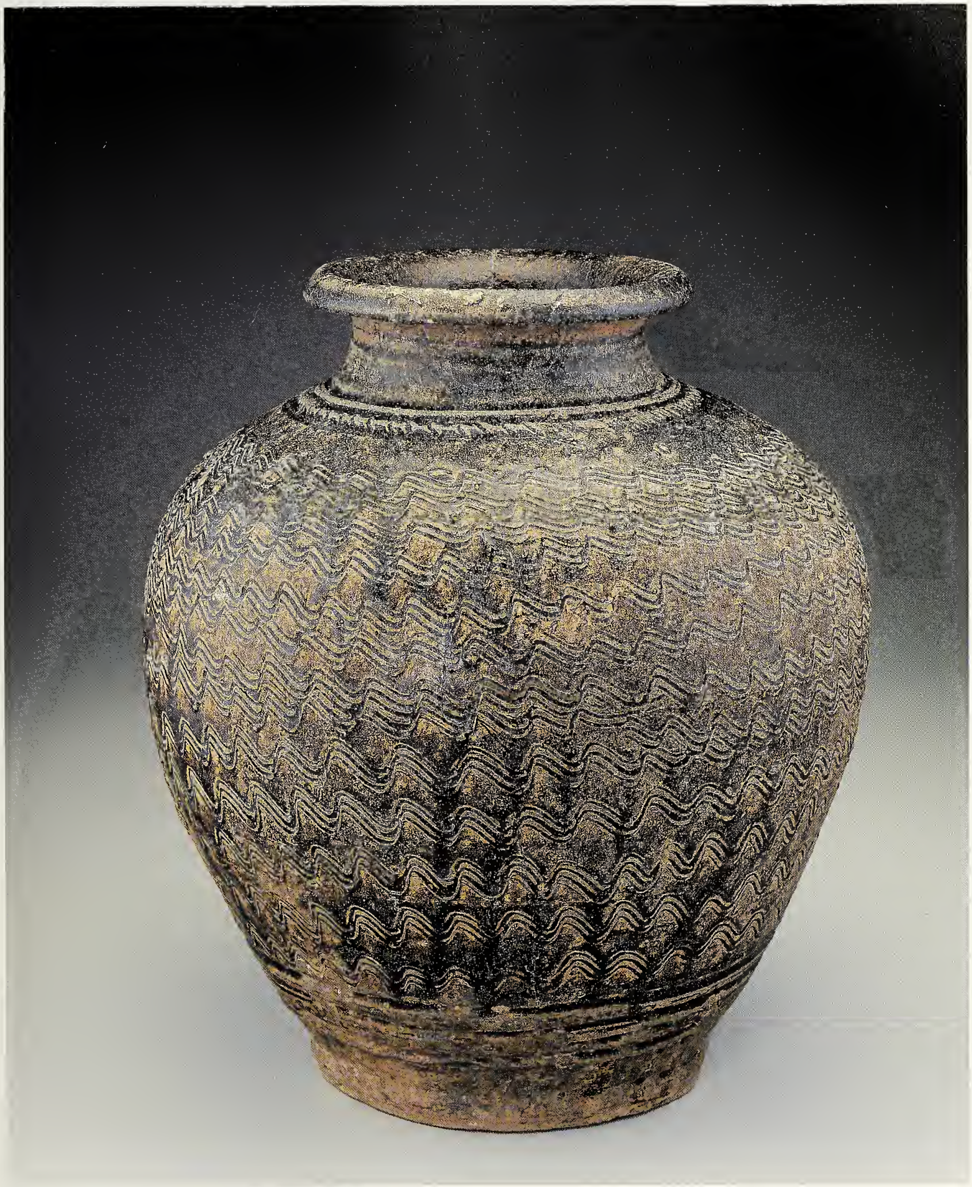

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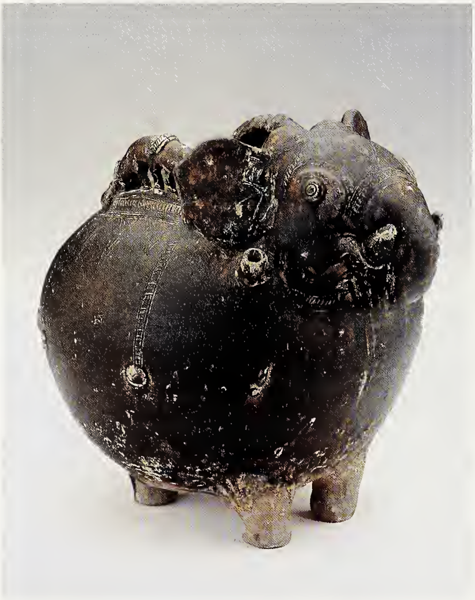

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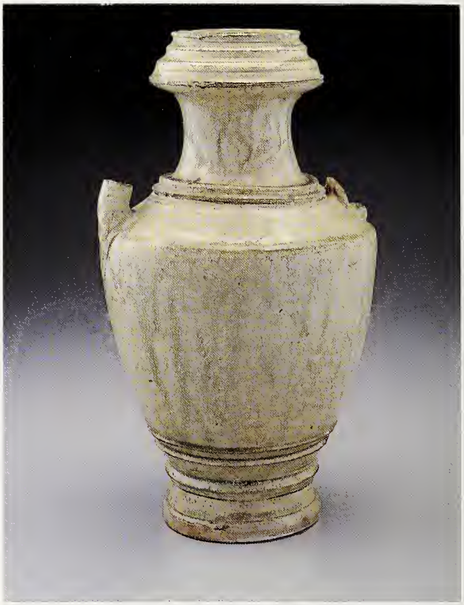

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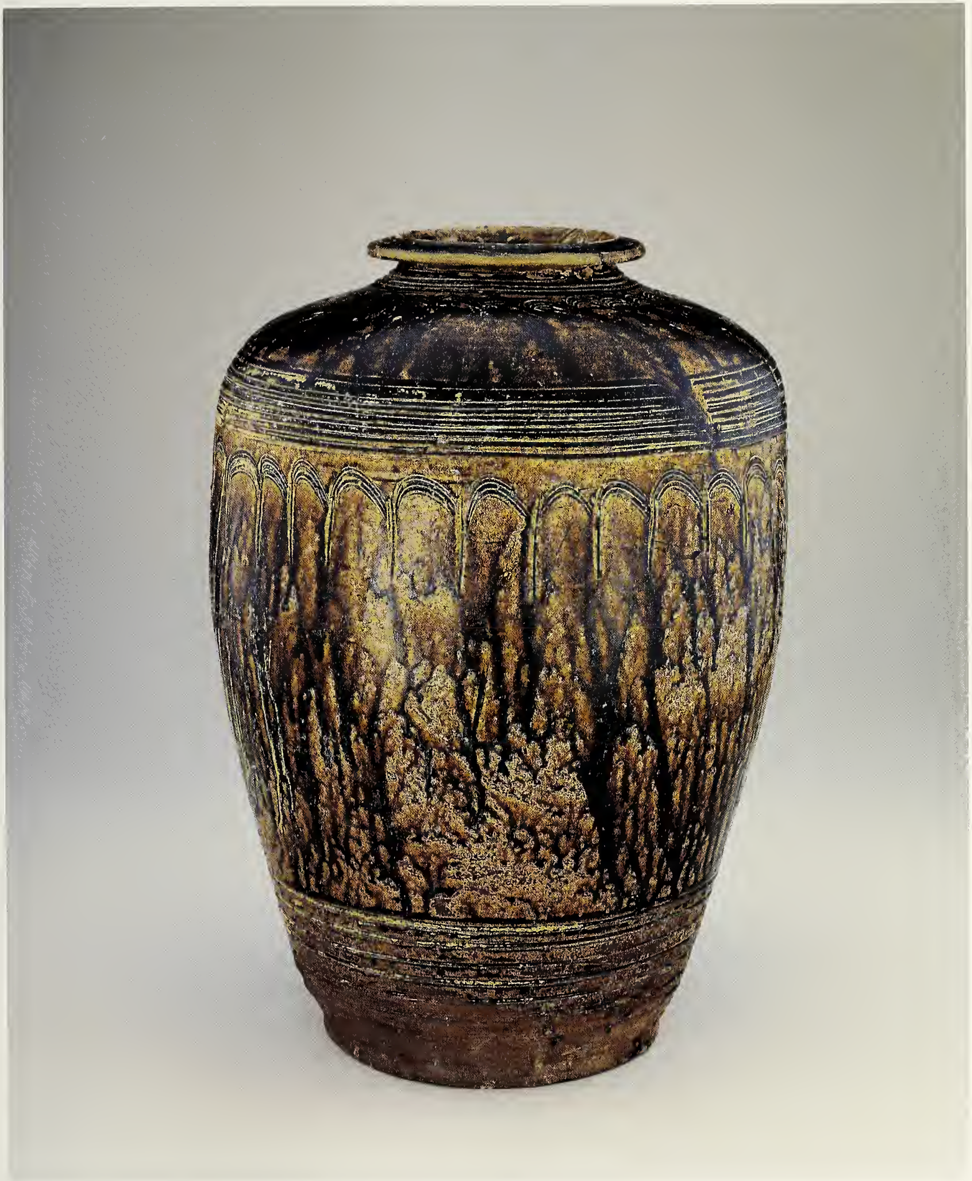
Cat. no. 76. Elephant-shaped vessel with spout, probably Thailand, Buriram Province, 12th–13th century, brown stoneware with iron glaze, 22.2 x 20.8 x 25.2. Gift of Osborne and Gratia Hauge, s1996.124

Cat. no. 68. Ewer, probably Thailand, Buriram Province, 11th–12th century, white stoneware with ash glaze (spout and ring-handle damaged), 36.0 x 21.1 x 20.1. Gift of Victor and Takako Hauge, s1997.131

Cat. no. 74. Cylindrical jar, probably Thailand, Buriram Province, 12th–13th century, brown stoneware with iron glaze, 48.4 x 35.7. Gift of Osborne and Gratia Hauge, s1996.115

turtles (cat. nos. 57–60, 62, 77). The lion-shaped vessel in the Hauge collection is an uncommon form (cat. no. 58). Zoomorphic vessels of this size are often found filled with hardened lime paste, one of the ingredients for the betel quid; it is likely that these vessels were made for that specific purpose. (The custom of chewing betel quid—a mixture of lime paste and slivers of areca nut wrapped in a heart-shaped fresh betel leaf—has been widespread in Southeast Asia since prehistoric times.) One large elephant-shaped iron-glazed vessel, however, was apparently intended for a different purpose relating to the pouring spout positioned on its shoulder (cat. no. 76). Another category of zoomorphic vessel is the variety of conch shells faithfully rendered in clay, some of which are complete with the internal structure that allows them to be sounded as ritual horns (cat. no. 61). Zoomorphic vessels appear with ash glaze, sometimes with details painted in iron pigment beneath the glaze, or iron glaze.

The anthropomorphic bottles typically include a minimum of



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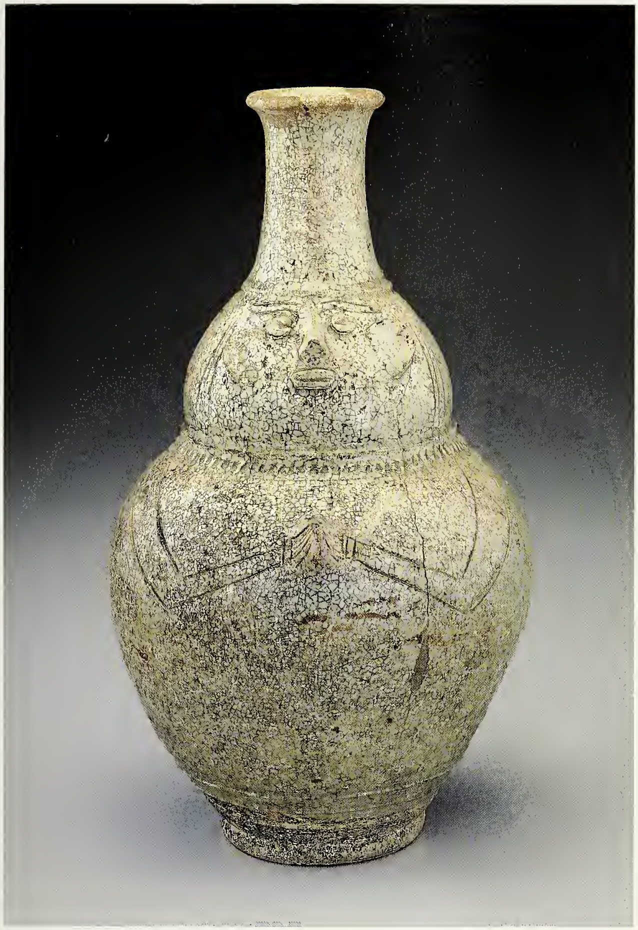
applied and incised details to transform a wheel-thrown gourd-shaped form into a human devotee with hands pressed together over the chest (cat. nos. 54, 79). They have no known parallels in other materials. It is common for the long necks of these bottles to be broken (perhaps intentionally, as part of ritual use) and lost, and only the ash-glazed bottle in the Hauge collection shows the original form (cat. no. 54). One piece in the Hauge collection, however, has legs applied to the base (cat. no. 83) and is also exceptional in representing two figures seated back to back.[8] Another unusual vessel in the collection, larger than most anthropomorphic bottles, seems closely related in its iconography to the four faces gazing in the four directions above the gateways to the city of Angkor Thom, or to certain stone images of the four-faced Hindu deity Brahma (cat. no. 84). On this ash-glazed vessel, iron pigment accents applied details of the faces and outlines the wide base. The vessel's proportions suggest a relationship to the undecorated bottle form (cat. no. 73, fig. 2), with the position of the four large faces corresponding to the usual band of neck decoration. Perhaps this rare version makes explicit an iconography associated with the rituals in which such bottles were used.

The repertory of Khmer glazed stoneware includes very few examples of hollow or solid sculptural figures; they are so rare that they must have been made as personal commissions or occasional potters' whims, not as standard products.[9] Other objects of this sort include trapezoidal or round bells approximating the forms of wooden cow bells or bronze jingle bells.[10] Finally, the variety of ornate and ornamental lids for jars of all sizes constitutes a category in itself.

Dating Khmer Ceramics

As the study of ceramics in China and Japan has shown—benefiting from the concentrated work of hundreds of scholars in various fields of study over several decades—reliable dating of ceramics depends on sensitive archaeological excavation of both production sites and utilization sites to produce a description of the repertory of shapes and their changes over time. At the present stage of knowledge, the dating of Khmer glazed stoneware ceramics is still extremely vague. The scholar who had the most extensive and direct hands-on knowl-



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Cat. no. 54. Gourd-shaped bottle in the form of a worshiper, probably Thailand, Buriram Province, 11th–12th century, light gray stoneware with ash glaze, 29.1 x 16.7 x 17.2. Gift of Osborne and Gratia Hauge, S1996.110

edge of Khmer ceramics coming from sites in the Angkor region was Bernard Philippe Groslier (1926–1986), who served as conservator of the Angkor monuments from 1960 to 1975. Unfortunately he did not publish detailed reports of his excavations that would allow an objective understanding of the stratigraphic position of ceramic finds. Nonetheless his efforts at drafting a chronology for Khmer stoneware

Fig. 7. Preliminary chronology of Khmer stoneware ceramics. After Bernard Philippe Groslier and Roxanna Brown

1. Birth
   Final quarter 9th century–first quarter 10th century
   Indravarman (reigned 877–889) and Yasovarman (reigned 889–ca. 910)
2. Infancy
   Second half 10th century
   Rajendravarman (reigned 944–968) through Jayavarman V (reigned 968–1001)
3. Adolescence
   First half 11th century
   Suryavarman I (1002–1050)
4. Proliferation
   Mid-11th century
   Udayadityavarman II (reigned 1050–1066)
5. Crystalization
   Last quarter 11th century
   Jayavarman VI (reigned 1080–1107)
6. Classicism
   First three quarters of 12th century, Suryavarman II (reigned 1113–ca. 1150) to the sacking of Angkor by the Chams (1177)
7. End
   Last quarter of 12th century–[end of 13th century?]
   Jayavarman VII (reigned 1186–1218) and thereafter

ceramics have given us a sound basis for beginning to group the wares.[11] Art historian Roxanna Brown has compiled an expanded version of Groslier's chronology, taking into account his otherwise-unrecorded discussions with her in the field (fig. 7).[12] Groslier developed a chronology divided into seven phases, based on the dates of associated major monuments in Angkor and thus on the politics of rulership—even while questioning whether that "historical rhythm" was the most appropriate measure of ceramic evolution (although it has been the pattern followed, for better or worse, in the study of most Asian high-temperature ceramics). Groslier acknowledged that the ceramics he excavated from monumental sites—temples and palaces—were specialized and limited. The sites did not represent the full time span of Angkor, creating gaps in the understanding of ceramics, especially after the mid-thirteenth century. (Recent research indicates that Angkor was inhabited until the sixteenth century.) A peculiarity of Groslier's dating was his unwillingness to admit the presence in Angkor of ceramics made at the kilns in Northeast Thailand, which he considered to be products made strictly for provincial distribution. This question has never been resolved, although the existence of the other provincial kilns that Groslier insisted must exist is now beginning to be confirmed. Groslier's description of the distribution of Chinese ceramics in Angkor, in quantities that greatly outnumbered Khmer glazed stonewares, creates the present perception of the relatively minor importance of Khmer stoneware as a medium.[13]

With the resumption of research in Cambodia in recent years, there are various hopeful signs for the study of ceramics. The recent discovery and excavation of kilns within the Angkor region give an expanded basis for an understanding of technology. At present, the conservative dating of these sites places them no earlier than the mid-tenth century and no later than the second half of the eleventh (because of Groslier's date for the appearance of iron glaze, seemingly absent from these sites). Phnom Kulen, an alleged site of ninth-century kilns, has just become available again for investigation. Other kiln sites probably await discovery. Excavations of important sites outside of Angkor itself, at Oc Eo in southern Vietnam or at Wat Phu in southern Laos, for instance, will address questions of chronology and distribution as well as the issue of provincial kilns. A thorough analysis of all of the ceramic finds from recent French excavations of the royal palace site, including both Khmer earthenware and stoneware, will reassess the relative importance of Khmer ceramics vis-à-vis imported wares.[14] This is an exciting time for the study of this material, and the fine pieces in the Hauge collection are certain to acquire yet more precise identities as our knowledge increases.

TECHNOLOGY

Shaping

Khmer potters used two basic types of clay.[15] Both are classified in Euro-American terminology as stoneware, meaning that they are formed from weathered rock. Their composition permitted them to be fired in kilns at temperatures between about 1100 and 1300°C, after which they retained their shape and were tough, nonporous, and stonelike in their hardness. For small vessels, especially for those to be glazed with a translucent green or yellow glaze, potters used a fine-grained clay that fired to near-white or pale gray because of the low percentage of iron and other ferruginous impurities that would otherwise have colored the clay. Some white-bodied pieces, especially those of early date (cat. no. 50), show black flecks of iron oxide in the clay. Most larger vessels (especially those to which brown glaze was applied) were formed with a coarser clay that fired medium gray or reddish brown. While large impurities were picked out of this clay, apparently it was not treated by sieving. Sometimes pebbles that escaped notice remain imbedded in a vessel wall. Little is known about sources of stoneware clay used by Khmer potters.[16]

Earthenware, on the other hand, is formed from a plastic secondary clay (deposited by running water) containing considerable organic and inorganic materials that contribute to its lower melting point. Earthenware is fired in a bonfire or kiln to temperatures between 600 and 1000°C. Even after firing it remains porous, making it suitable for purposes such as cooking (since it will expand rather than fracture in response to a sudden temperature change) or for cooling drinking water (through evaporation of the water that seeps to the vessel surface). Stoneware ceramics did not "evolve" from earthenware; instead, the technologies for working earthenware and stoneware clay developed separately for different purposes.

The potters who shaped Khmer stoneware ceramics depended upon the potter's wheel, which they used in two ways.

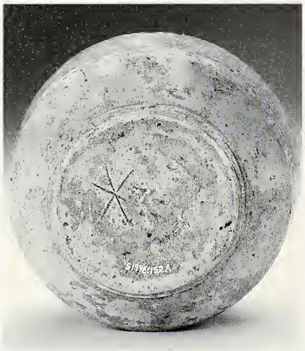


Fig. 8. Base of box, cat. no. 50, showing smoothly trimmed base and incised mark beneath ash glaze. Arthur M. Sackler Gallery, gift of Osborne and Gratia Hauge, S1996.152

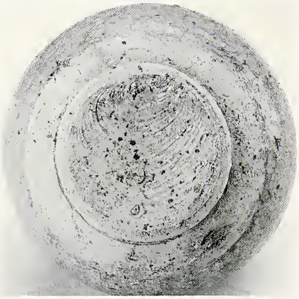


Fig. 9. Base of jar, cat. no. 55, showing whorl-shaped mark left by using twisted cord to slice finished vessel off lump of clay. Arthur M. Sackler Gallery, gift of Osborne and Gratia Hauge, S1996.142

For smaller vessels, they spun the wheel fast and used its centripetal force to raise or "throw" the moist, plastic clay into the desired form in a single sequence of gestures. They probably worked from a lump of clay attached to the wheel, from which, with the wheel spinning, they squeezed off the amount of clay required to shape a vessel. With the wheel still spinning, they used a twisted cord to slice the vessel off the lump of clay, holding one end of the cord steady and pulling the other end through the clay. The cord's movement left an asymmetrical whorl-shaped mark on the base. On early vessels, the cord scar was completely erased by neat concentric trimming of the base (fig. 8); on later pieces the mark was left unretouched (fig. 9). Study of this mark demonstrates that the wheel was spinning in a counter-clockwise direction.

For larger vessels, the wheel was used as a turntable for the compound process known as coiling and throwing. The potter made a small lump of clay, threw it down onto the center of the wheel, and pressed it into a flattened disk of appropriate size for the base of the vessel. Additional clay was formed into a long coil that the potter attached to the circumference of the disk, in most cases allowing the coil to overlap slightly. Evidence of this process is visible on the bases of many vessels, on which the clay has a uneven "wrinkled" appearance (caused by the flattening of the disk) and the slightly concave center (corresponding to the disk) is surrounded by a slightly projecting ring (the edge of the coil) (fig. 10). In the case of very large vessels, the potter formed the correspondingly large base from several lumps of clay thrown down together and consolidated.

The potter secured the clay coil around the circumference of the base and then used the free end to coil up a wall, joining additional coils as necessary to form a thick-walled basin. Then, with the wheel spinning fast, the potter "threw" the coiled wall to thin and extend it. This coiled-and-thrown form became the base and lower wall of the jar. It was allowed to dry until it was still damp but stiff enough to support additional weight. The potter then attached another coil to the upper edge and built a cylindrical segment of vessel wall, once again throwing the coiled form to the desired thinness. Depending on the size of the finished vessel, this process would be repeated three or more times, ending with the coiled addition that became the shoulder, neck, and rim.

The coiling-and-throwing process has been widely used in Asia for forming large jars, vats, and other utilitarian vessels, in which the overall weight of the clay required that it be added in segments so that the vessel could support itself. The process can still be observed in pottery workshops in East and Southeast Asia.[17] What is surprising about Khmer stoneware ceramics is that a variant of the process appears to have been used even for vessels of quite modest size, including bowls, as indicated by the wrinkled texture on the untrimmed base. In this case, a single small lump of clay was probably attached to the wheel to form the base and, with the wheel spinning fast, was used to throw the walls as well.[18]

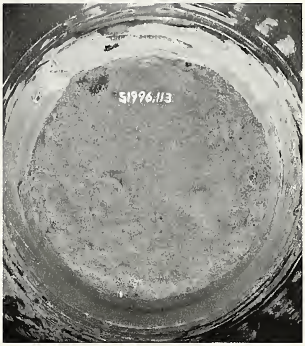


Fig 10. Base of bottle, cat. no. 73, showing wrinkled surface and slightly projecting rim. Arthur M. Sackler Gallery, gift of Osborne and Gratia Hauge, s1996.113

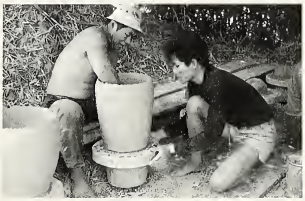
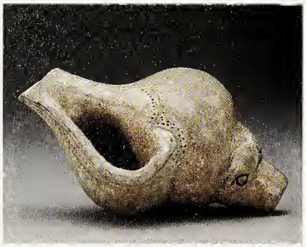


Fig. 11. Team of potters using coil-and-throw process to make series of stoneware jars. Nong Khai Province, Northeast Thailand, 1990

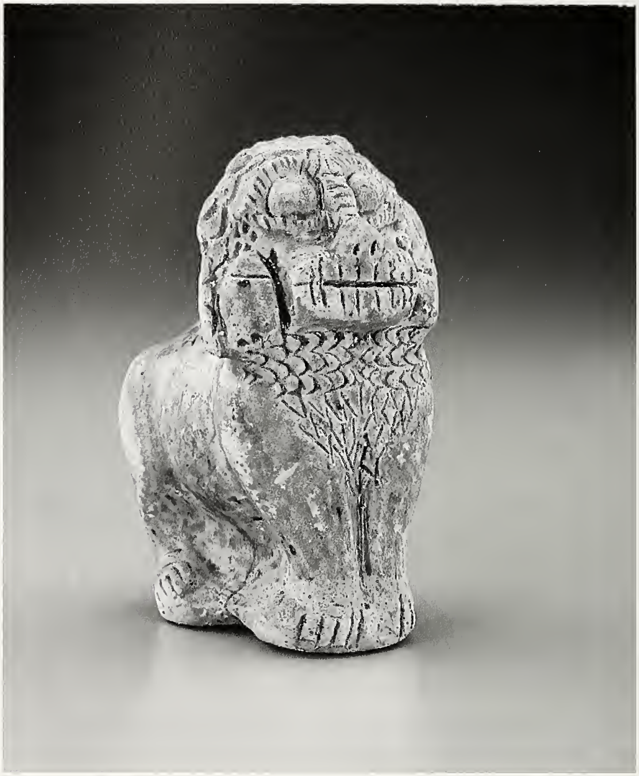
Observation of the coiling-and-throwing process in contemporary Southeast Asian workshops shows that in many cases the potter works as a team with an assistant who prepares the clay coils and spins the wheel rapidly for the throwing phase (fig. 11). When the potter is adding coils, he turns the wheel himself. In some workshops in Laos and Northeast Thailand, the potter and his assistant use a set of ten wheels, working sequentially and in stages on ten vessels in the course of the day.

Despite the predominance of wheel-based forming methods in the repertory of Khmer stoneware ceramics, there exists a significant group of objects shaped entirely by hand. These include some of the zoomorphic vessels (cat. nos. 77, 78) as well as sculpted hollow or solid figures and bells. A notable shape in this category is the vessel in the form of a conch shell. Some of these were made as lustration vessels and others to be blown to make an auspicious sound during worship, reflecting the ritual uses of actual conch shells. The clay versions made to be blown were carefully sculpted with interior partitions replicating the actual conch shell so as to produce the appropriate sound (fig. 12). The sculpted details for wheel-thrown zoomorphic and anthropomorphic vessels were also shaped by hand. This suggests a category of work carried out by people who were not necessarily skilled at using the wheel—perhaps children or elderly parents. In the case of the frog-shaped vessel (cat. no. 77), the hollow body was pinched out of a lump of clay, the eyes and limbs were applied as dots or coils of clay, and a pointed stick added the nostrils and the smiling mouth. The lion (cat. no. 78) indicates first-hand familiarity with the forms and sculptural details of sandstone lion figures placed along the approach to temple buildings. With a



Cat. no. 61. Conch shell-shaped vessel with animal face, probably Thailand, Buriram Province, 11th–12th century, white stoneware with ash glaze, 9.6 x 18.0 x 11.4. Gift of Victor and Takako Hauge, S1996.168

Cat. no. 78. Lion-shaped lime-paste vessel (?), probably Thailand, Buriram Province, 12th–13th century, white stoneware with ash glaze, 10.1 x 5.0 x 6.8. Gift of Osborne and Gratia Hauge, S1996.150



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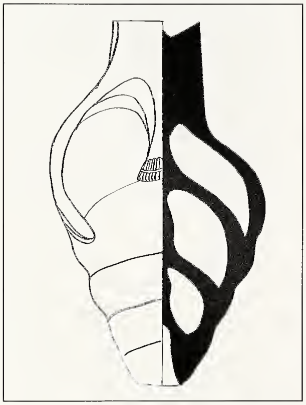


Fig. 12. Measure drawing of stoneware conch shell showing interior structure that enables shell to produce sound. White stoneware with ash glaze, L. 18.8. National Museum of Cambodia, H. 79, H. 47, 2

simple repertory of incised and impressed patterns, the clay sculptor deftly evoked the ornamental vocabulary of the stone carver.

Decorating

Khmer stoneware ceramics are notable for their absence of painted decoration. On a small subgroup of zoomorphic and anthropomorphic vessels, painted lines of iron pigment fill the space between pairs of incised lines to outline details of the form, but the painting is not freehand: it follows and is secondary to the incised decoration (cat. no. 62).[19] Khmer stoneware is totally devoid of the underglaze iron-painted floral decoration that appears on ash-glazed bowls and dishes from kilns operating in Guangdong Province during the eleventh and twelfth centuries,[20] whose wares were widely distributed in Southeast Asia, or on northern Vietnamese vessels beginning in the thirteenth century.[21] Since the Guangdong wares would have been available to Khmer consumers had they been of interest, it is possible to suggest an aesthetic aversion to such freehand painted decoration.

Floral decoration does not appear in incised form either, except in some rare cases on early vessels, as in the incised lotuslike petals radiating around the lid of the circular covered box (cat. no. 50). Some examples can also be found of modeled relief decoration in floral form (the knob in the shape of a lotus seed-pod on the cylindrical lidded vessel, cat. no. 51). In all cases, decoration is applied to the bare clay prior to glazing. There are no instances of designs, whether floral or geometric, made by cutting away areas of the glaze and painting in a contrasting pigment or glaze (as was done in northern Vietnam in the twelfth through fourteenth centuries).[22]

Instead, the decoration of Khmer ceramics depends, like the shaping of the vessels, on the use of the potter's wheel. It consists essentially of profiles cut into the vessel wall and of combinations of lines, molding, combing, and motifs incised or impressed into the moist clay, all while the just-formed vessel was still on the potter's wheel. (Thus it can be assumed that the potter and the decorator were one person, unlike the division of labor common in ceramics workshops where emphasis was given to painted ornamentation.) This decorative repertory, making use of the wheel's swift revolution, produces a variety of horizontal incisions and bands of various widths and textures. Vertical or diagonal lines are occasionally found as supplements to the horizontal bands. Freehand ornamentation, as in a fluted rim pinched by hand on a bowl with interior stand (cat. no. 72), is exceedingly rare and basically an exception to the aesthetic of engraved, wheel-governed ornamentation. The bands of horizontal decor are placed on the vessel, moreover, so as to emphasize the curves and angles of the wheel-made form.

One can imagine a rather limited variety of simple tools for decoration lying on the potter's workbench. A selection of pointed blades, probably made of bamboo or wood, would have been used to cut the tiers of beveled molding that appear especially prominently on the pedestal bases, necks, and rims of large vessels (cat. nos. 65, 68). The molding was usually cut before other decoration was added. The potter probably reached frequently for a sharp-pointed stick in order to incise single lines, pairs of lines, or multiple lines. On some Khmer glazed stonewares, such lines are the dominant mode of decoration. A pointed stick also drew the details on zoomorphic and anthropomorphic vessels, using closely spaced parallel lines filled with hatching. The potter used a flat blade with a pointed tip to sculpt the panel of radiating flower petals on the lid of the small jar with lotus seed-pod knob (cat. no. 51), first cutting the lines to separate the petals, then pressing the triangular tip of the blade to define the petal tips.

A comblike tool tipped with three, four, or five pointed teeth (possibly even a section of an actual hair comb) could create a band of straight, parallel lines or of scalloped swags.[23] Scalloped combing, which becomes prominent on later Khmer stoneware (cat. no. 82), varies greatly in scale and mood. Occasionally, the combing tool was rhythmically lifted and jabbed as it was dragged around the revolving vessel, creating a textured band.

In addition to the tools presumably made from wood or bamboo, certain impressed designs characterized by crisp, fine lines suggest that some potters may have had access to metal tools—perhaps dies or stamps acquired from gold- and silver-workers. Overlapping V-shaped dies marked bands of "cross-hatching" (fig. 13, detail of shoulder of S1996.158), while plain or notched circles marked eyes and other features on zoomorphic and anthropomorphic vessels. Dots and crescents were included in this borrowed alphabet of decorative shapes as well (cat. nos. 61, 78).

Glazing

Just two basic and closely related high-temperature glazes are used on Khmer stoneware, although variations in raw materials, composition, application, and firing conditions created a range of shades and textures in each. The essential Khmer glaze is a lime glaze or lime-ash glaze, composed of wood ash and clay. The potters probably used wood ash collected from the fireboxes of their wood-fired kilns. Since kiln firings probably made use of a variety of locally available wood—particularly those types deemed inappropriate for building or woodworking—the composition of the ash likely varied from firing to firing. The clay was the same light-colored clay used for shaping the ware. These two ingredients were combined in established proportions (rather than exact measures) and mixed with water to make a liquid with the consistency of heavy cream. This type of glaze is the oldest and most enduring in East Asia (in China it is known as early as 1400 B.C.) and probably arose as an attempt to replicate the glassy sheen that occurred naturally when wood ash from burning fuel melted on the upward-facing surfaces of vessels fired to high temperatures (upwards of 1170°C) in a kiln.

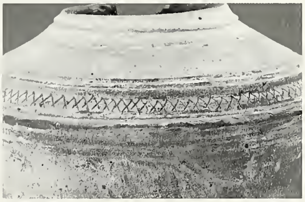


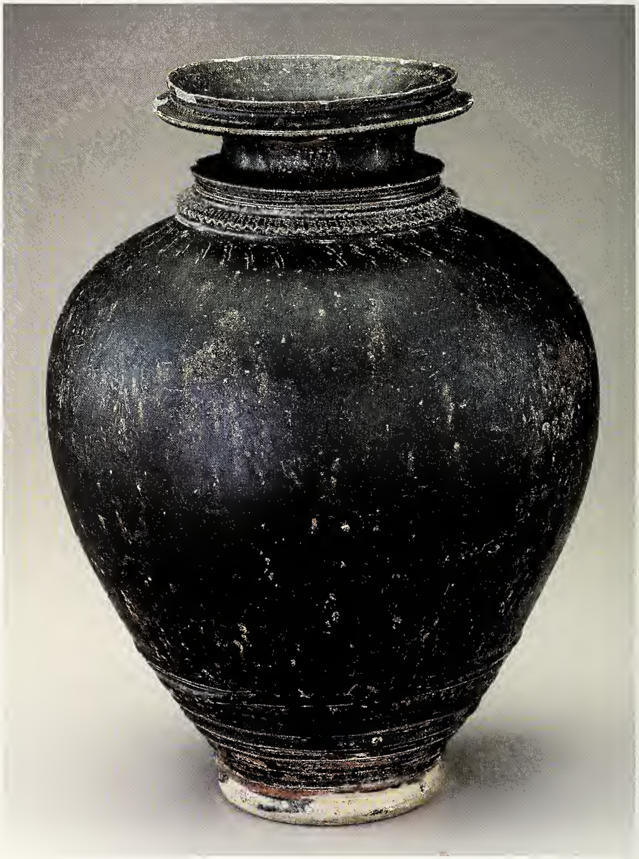
FIG. 13. DETAIL OF SHOULDER OF JAR, SHOWING "CROSSHATCH" PATTERN PRODUCED BY OVERLAPPING IMPRESSIONS OF V-SHAPED DIE. ARTHUR M. SACKLER GALLERY, GIFT OF VICTOR AND TAKAKO HAUGE, S1996.158

The Khmer ash glaze takes its color from a small percentage of iron oxide; probably the amount occurring naturally in the glaze materials was sufficient. The glaze ranges in color from nearly colorless or pale yellowish green to clear green (depending on the glaze composition and thickness and the amount of available oxygen during the firing) and in texture from thin and smooth to thick, crackled, and uneven. This range of characteristics on the ash-glazed pieces also relates to their chronological development. Since Khmer pots were fired without protective covering (in the form of fired clay containers, or saggers), additional wood ash landing on the vessel during firing also affected the appearance of the glaze.

The second basic glaze resulted when additional iron oxide was added to the ash glaze to produce a brown-toned glaze. The iron was added either in the form of the red-brown clay used to make large vessels or perhaps as laterite, an iron-rich volcanic conglomerate abundantly available in the Angkorean region. The proportion of clay to wood ash would have required adjustment, because a higher percentage of iron would have increased the glaze's tendency to run.

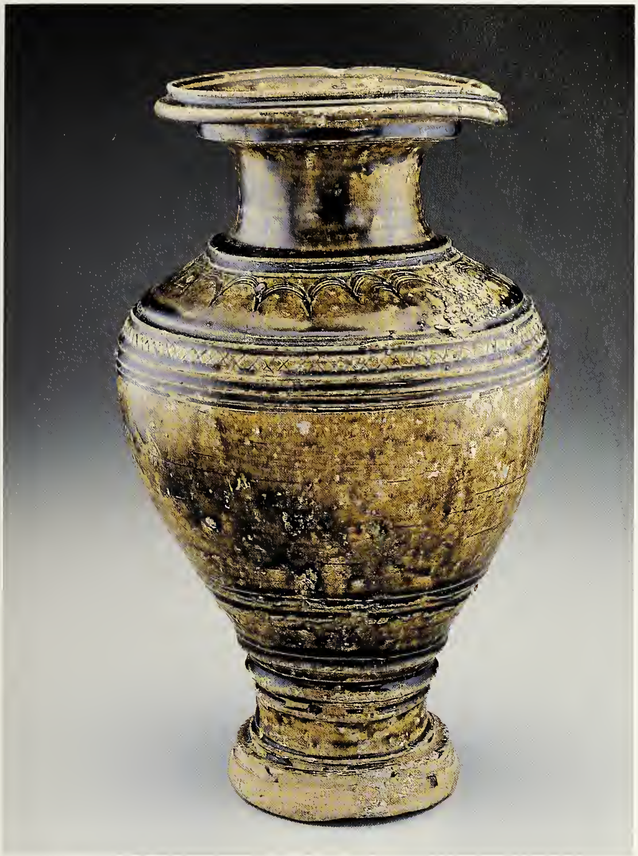
Khmer iron glaze varies greatly in color and consistency, from a thin, golden brown to an opaque, matte brownish black, including a dark olive green. The final color of either Khmer glaze—especially the iron glaze—depended upon a whole range of variables, none of which was tightly controlled, including the dampness of the vessel at the time of glazing (Khmer vessels were glazed "raw" and were not prefired, or bisqued, to a low temperature); the proportion of iron-bearing materials in the particular glaze batch; the atmosphere of the kiln; the temperature reached during firing; and even the position of the piece in the kiln in relation to the fuel burning in the firebox. Inspection of the brown-glazed ceramics in the

Cat. no.81. Jar, probably Thailand, Buriram Province, 12th–13th century, brown stoneware with iron glaze, 40.0 x 30.1. Gift of Victor and Takako Hauge, s1997.132



81

Hauge collection reveals that glaze color varies in relation to the hardness of the fired clay. Most pieces were fired to less than full vitrification; thus the clay is still soft and quite porous. On such pieces (for example, cat. no. 72), the amber brown glaze is thin, translucent, and even. As the hardness increases, the glaze is darker in color (cat. no. 81) and often more irregular in texture, with thick rivulets of darker toned glaze (cat. nos. 73, 74). The highest fired iron-glazed vessel in the group is cat. no. 65; the vessel rim is beginning to collapse, and the glaze is a translucent, deep olive green. In



65

Cat. no. 65. Baluster-form jar, probably Thailand, Buriram Province, 11th–12th century, brown stoneware with iron glaze, 36.8 x 23.0. Gift of Osborne and Gratia Hauge, S1996.117

any case, the glaze color we see may have been affected by weathering and degradation, especially if the piece was buried for a long time rather than passed down as an heirloom (a circumstance that seems exceedingly rare for Khmer ceramics).

Most smaller pieces were probably glazed by dipping the inverted vessel into the vat of glaze. Glaze completely coated early ash-glazed pieces, including the base, and preliminary kilnsite evidence suggests that they were fired on clay wads.[24] Later pieces were dipped only to the lower edge of the wall, leaving the foot bare. On

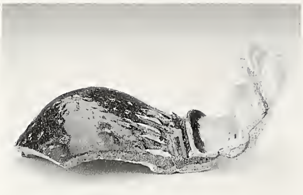


Fig. 14. Sherd of Khmer stoneware jar using ash and iron glazes over white and brown clays, Northeast Thailand, Khmer kiln complex, Angkorean period, 11th–12th century, H. 15.2. Freer Gallery of Art, Gift of Fujiwara Hiroshi, FSC-P-4743

some medium-sized pieces, swags along the lower edge of the glaze suggest that the glaze was ladled over the inverted vessel resting in a tub to catch the run-off. Large pieces were probably glazed in a variation of this process. On many iron-glazed pieces, the glaze was wiped off the lower body to avoid problems with excessively runny glaze (cat. no. 73).

Ash glaze alone appears on the earliest known glazed Khmer stonewares, which are assumed to come from the kilns on the Kulen Plateau and known to be from the kilns on the plains between the plateau and Angkor. (For this reason, the term "Kulen glaze" has sometimes been applied confusingly to all ash-glazed wares, regardless of their probable date and place of manufacture.) At the same time, larger vessels made from brown clay were fired without glaze. On some of those, wood ash deposited during firing melted to form a natural sheen that was formerly interpreted as an intentional glaze termed *lie de vin* (wine dregs) for its purplish brown color. A true brown or black glaze—the second major Khmer glaze—is not known from those sites, at least from surface finds. It appears to have developed at kilns within the far-flung complex located in modern Buriram Province, in Northeast Thailand. Bernard Groslier found brown-glazed wares in his excavations of sites in Angkor dating to the first half of the eleventh century and reported that such pieces outnumbered green-glazed in sites from the second half of the century.[25]

In Khmer potters' most distinctive approach to glazing, they sometimes combined the two basic glazes on a single vessel. Typically, the green glaze is applied to the upper portion (usually the neck) and the brown glaze to the lower, with the boundaries between glazes emphasizing the variations in the form (cat. no. 66). Small, two-color vessels may be made entirely from light-colored clay, but on larger vessels, which needed to be formed from red clay for strength, the potters invented a way of laminating white clay onto a rudimentary neck of red clay and throwing it to make the finished form. This lamination can be seen clearly in cross section on sherds of two-color vessels (fig. 14). Whereas the ash glaze would have appeared muddy over the dark clay, the underlying white clay showed it to best advantage, and its sparing use perhaps also conserved a scarce resource.[26] On many large, two-color vessels, white clay was also used to form applied ornaments arrayed below the neck. Groslier found the greatest number of large, two-color vessels in excavations dating to the mid-eleventh century.[27]

Firing

Khmer stonewares were fired in kilns, using wood as fuel. Three locales for Khmer ceramic production have been identified to date. Only a full elucidation—through careful archaeological excavation—of the kiln structures and associated kiln tools will reveal the firing technology used by Khmer potters, make possible a discussion of the chronology of the sites, and permit the discovery of resemblances, if any, to firing technologies used elsewhere in East and Southeast Asia. It is this technological evidence, rather than stylistic comparisons alone, which will answer questions about the source of Khmer kiln technology.

The first known Khmer kiln site was identified in the late nineteenth century atop Phnom Kulen, the expansive plateau that rises above the plains northeast of Angkor where Jayavarman II was proclaimed universal monarch in 802 and the sandstone for the monuments of Angkor was quarried. Visiting in 1883, French explorer Etienne Aymonier described an area on the plateau marked by two earthen dikes that met perpendicularly—the remains of Khmer hydraulic structures. The tops of the dikes were strewn with broken pieces of glazed pottery ("bowls, lids, tiles, pointed roof ornaments"), while piles of similar materials rose from a small pond nearby.[28] (Visits by archaeologists in 1999 confirmed this description.) Aymonier also recorded a local tradition that the potters had been Chinese. Sherds collected on Phnom Kulen by a later visitor and given to the National Museum, Phnom Penh, in 1920, include several crisply carved ash-glazed lids from cylindrical containers similar to cat. no. 51, with relief-carved lotus petals on the shoulders and knobs in the form of stupas or lotus blossoms.[29] The finds also include roof tiles, hemispherical bases of small boxes, and a small bottle with flattened body, narrow neck, and heavy rim in the form of a truncated cone (see fig. 6).

A second center of Khmer ceramic production lies north of the current border between Cambodia and Thailand (which follows the Dangrek Escarpment), in Buriram Province of Northeast Thailand.[30] The kilns began to emerge around 1950 during logging and clearing of land for new fields: large, freestanding mounds, often topped by a tall tree growing out of the old kiln cavity, were scattered across the landscape, and the soil on and around them was thickly studded with sherds.[31] Surveys by archaeologists of the Fine Arts Department of Thailand documented several hundred kiln mounds dispersed throughout the province, although their excavations in the 1980s focused on three mounds in Ban Kruat and Lahansai districts, just north of the border.[32] Interpretations of the excavated kiln structures have varied, but recent excavations of kilns near Angkor (to be discussed below) help confirm the description that follows.[33] The kilns were constructed on artificially made mounds (perhaps augmenting natural hillocks). Four or five kilns appear to have been built and used sequentially on the same mound, with later kilns partially reusing the side walls (made of stones mortared with clay) of earlier kilns. The total length of a kiln from firebox at the base of the mound to chimney at the crown was about fifteen meters, and the width of the single long ware chamber was about five meters. At the rear of the firebox, where the fuel was burned, was a vertical wall almost one meter high leading up to the ware chamber. The floor of the ware chamber rose up the slope in three shallow steps, and a single row of thick cylindrical columns, spaced about one meter apart, was constructed along the length of the ware chamber to support the roof, now missing. (Some fired clay debris indicates that the roof might have been constructed from clay smoothed over an arched bamboo framework.) The gentle slope of the ware chamber floor would have encouraged a neutral to oxidizing atmosphere during a firing of fairly long duration.

Sherds recovered from the excavated kilns and other mounds show that ash-glazed, iron-glazed, and two-color wares were all made at these sites. Some visitors in the 1970s commented on the apparent dominance of a particular type of glaze at a given site, but this observation has not been quantified. The only special kiln-stacking devices seem to have been round balls of very sandy white clay, two to three centimeters in diameter, used as setters in stacks of green-glazed bowls, positioned around the base of each bowl, resting on the interior of the bowl below. (Round scars left by the balls are visible in the glaze of cat. nos. 63 and 70.) There is no evidence that the potters placed any wares inside saggers of the sort that were common at kilns in southern China. Some surviving vessels bear grit imbedded in the glaze on their shoulders, probably signs of a kiln roof's beginning to crumble (cat. no. 65).

In 1995, three new production sites for Khmer ceramics were identified in Siem Reap Province on the plains west of Phnom Kulen and east of the Angkor monuments, bordered by Rolous (the tenth-century royal city of Hariharalaya) to the south and Phnom Bok (site of an early tenth-century monument dedicated to the Hindu deity Shiva) to the north. Kilns in the hamlets of Tani, Kna Bos, and Bang Kong made large, unglazed stoneware bottles and jars and unglazed roof tiles. Only a few surface finds of brown-glazed wares have been reported, suggesting that these kilns did not produce them. Like the site on Phnom Kulen, the kilns in Tani Hamlet also made ash-glazed roof tiles and ash-glazed vessels, chiefly small bottles and boxes. A distinctive product said to be from the Tani kilns (according to treasure hunters, but not yet confirmed by archaeology) is a type of small round box with bird head, wings, and tail sculpted in relief on the lid. These boxes occur singly but also with two or three lids luted together to make a double- or triple-bodied box. Recognition of their similarity to boxes made at kilns in Guangdong Province during the Northern Song period (960–1127) has intensified the speculation on the relationship of early Khmer and southern Chinese ceramics.[34] The neatly trimmed bases of the ash-glazed vessels ascribed to the Tani kiln site are completely glazed, and most bear incised marks composed of multiple straight lines arranged in patterns that vary widely (see fig. 8). The purpose of these marks is not yet understood.

The Siem Reap kiln sites, particularly Tani, have been the subject of careful investigation by teams of Japanese archaeologists from the Sophia University Mission in Angkor and from the Nara National Research Institute for Cultural Properties.[35] Two kiln mounds from the five clusters of such mounds located atop a long, low, ancient dike running north-south with a road on it were excavated in 1999–2000. In March 1999, the Sophia team uncovered a kiln built on an artificial mound made of clay. The kiln, built of unfired clay blocks, consisted of a single oval ware chamber about three meters wide at most and measured about eight meters from the front of the firebox at the base of the kiln to the smoke exhaust opening at the rear. A steep vertical wall about one meter high separated the firebox below from the ware chamber above. A round pillar constructed above the vertical wall at the opening to the ware chamber may have served both as a roof support and a flame divider. The Nara team's excavation of a second kiln mound confirmed these findings about the kiln structure, which shows substantial continuity with the larger and later kilns in Northeast Thailand.

Following a long period of inaccessibility, the Phnom Kulen site reported by Aymonier was explored by Japanese archaeologists working at the Tani site in August 1999. Their preliminary conclusions from the huge quantity and fine quality of ash-glazed sherds they found is that Phnom Kulen housed the primary ceramics production facility for the Angkor region and was active for an extended period, while the auxiliary kilns at Tani and elsewhere produced similar wares of lesser quality and for shorter durations. An excavation of the Phnom Kulen site is urgently awaited.

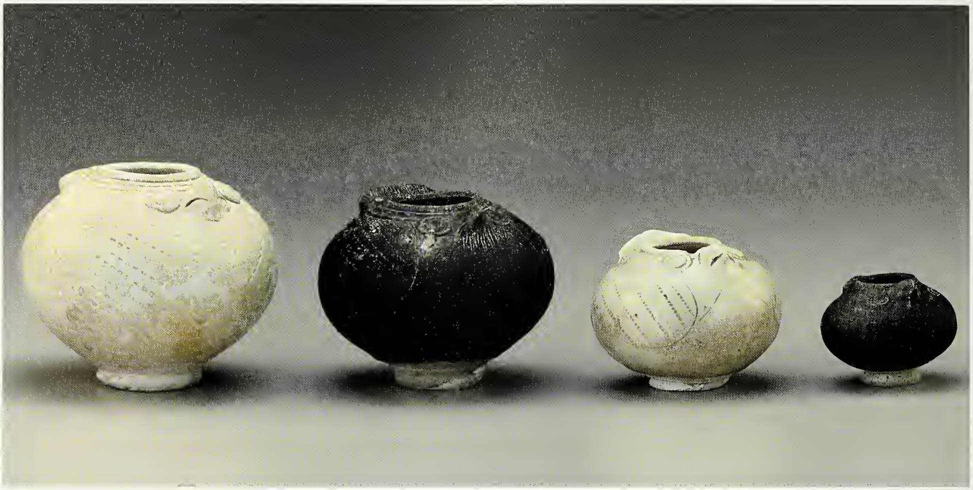
In addition to these three locales of ceramic production, others have been tentatively identified. Archaeologists working at the Khmer sacred site of Wat Phu (now in southern Laos) found what appears to be a row of kilns along a dike that formed part of the irrigation structure for the village at the foot of the sacred mountain whose inhabitants served the religious community. First announced publicly in 1998, this "kiln site" has not yet been excavated.[36] Groslier was convinced, on the evidence of clay bodies unlike those of Kulen or Buriram, that kilns must have operated at other Khmer settlements—in the tenth century near Sambor Pre Kuk and in the twelfth century near Preah Khan in Kompong Svay.[37] Indeed, it is reasonable and likely that quite a few more production sites for Khmer stonewares will come to light, if the case of Japan is any example. In the 1950s, just six regional kilns that produced stoneware in medieval Japan were known. Subsequently, however, large-scale infrastructure construction in rural areas has uncovered upwards of eighty such sites, requiring a thoroughgoing revision of the description of medieval ceramic production.

Meanwhile, the differences in types and quality of wares from the three known centers seem to suggest a sequence of activity. The initial activity of the kilns on the Kulen Plateau might be dated to the first half of the ninth century through assumed association with the religious monuments built when a capital of Jayavarman II was located there. This kiln center appears to have been active over several centuries. It has been proposed that the Tani kiln and others on the plains east of Angkor operated roughly from the mid-tenth to the second half of the eleventh century.[38] This would agree with the concentration of early monuments in the eastern Angkor region. Activity of the Buriram Province kilns may have coincided roughly with the period circa 1000–1300, when Phimai was a major regional administrative and religious center for the Angkorean state.[39] Although scholars disagree about whether Buriram ceramics were shipped to Angkor, Ban Kruat, at least, lay along the road connecting Phimai and Angkor, which provided access to long-distance distribution.[40] In the fourteenth century, as Angkorean power waned and its network of political, economic, and religious links frayed, the Buriram region came under control of the Thai kingdom based in Ayutthaya, which had more convenient sources of glazed stoneware at Si Satchanalai and other ceramic centers in north-central Thailand. Perhaps even earlier, demands for fuel not only by the potters but also by the competing large-scale industries of iron-smelting and salt-making may have led to deforestation of the region.[41]

A noteworthy characteristic of all the Khmer kilns identified so far is that they were built upon artificial mounds (rather than cut into a riverbank or natural hillside, as were historical kilns elsewhere in Thailand and Laos). In some cases the artificial mounds for the kilns were further elevated upon artificial dikes constructed to control water movement. Thus Khmer ceramic technology appears to have been integrated with the famed Khmer skill at constructing earthworks for purposes of agriculture and urban development. Whether this association had any meaning beyond engineering convenience remains to be explored.[42]

PRODUCTION

Surviving Khmer inscriptions are silent on the place of potters in Khmer society (whether they were free citizens or slaves), the structure of ceramic workshops, or the ceramic industry as a whole. Cumulatively they indicate in more general terms an organization of specialized craft villages, often associated through endowment grants with religious centers, that regularly turned over specified quantities of their output.[43] If contemporary stoneware production by Thai-Lao potters in Northeast Thailand can be taken as a model, Khmer potters operating in the same environment probably concentrated on


57, 60, 58, 59

Cat. no. 57. Bird-shaped lime-paste jar, probably Thailand, Buriram Province, 11th–12th century, white stoneware with ash glaze, 12.4 x 12.1. Gift of Osborne and Gratia Hauge, s1996.145

Cat. no. 60. Bird-shaped lime-paste jar, probably Thailand, Buriram Province, 11th–12th century, white stoneware with iron glaze, 11.0 x 11.3. Gift of Victor and Takako Hauge, s1996.172

Cat. no. 58. Bird-shaped lime-paste jar, probably Thailand, Buriram Province, 11th–12th century, white stoneware with ash glaze, 7.0 x 9.0. Gift of Osborne and Gratia Hauge, s1996.146

Cat. no. 59. Bird-shaped lime-paste jar, probably Thailand, Buriram Province, 11th–12th century, white stoneware with iron glaze, 5.9 x 6.4. Gift of Victor and Takako Hauge, s1996.171

ceramic production during the dry season—November through May—when the wares, kilns, and fuel were not affected by heavy rains. Khmer potters probably worked as farmers during the rainy season, as do Thai-Lao potters today. Thai-Lao stoneware makers are men, while earthenware production, as in Cambodia, is the specialty of women.[44] Judging from contemporary practice, a single kiln might have been shared in rotation by several workshop teams. A single mound could support a kiln repaired and rebuilt over decades.

No excavated kiln has yet been analyzed for a view of its repertory or range of output. Ash-glazed bowls seem remarkably uniform in size, although their forms vary, as though a single size suited all uses to which they were put. Bird-shaped pots for lime paste, on the other hand, are one of the vessel forms that come in varying sizes (as well as in both glaze colors), suggesting that some were used by a single betel-quid chewer, others by groups (cat. nos. 57–60).

FUNCTIONS OF KHMER STONEWARE CERAMICS

The majority of Khmer glazed stoneware ceramics appears to have been used by the elite class of society, in ceremonial or ritual circumstances. Virtually no documentary evidence survives to describe the use of glazed stoneware ceramics during the Angkorean period, so all suppositions about use must be drawn by cautious inference from such sources as stone bas-relief murals on the Bayon and Angkor Wat monuments, archaeological excavations, and by analogy with modern-day practices.[45]

The ewer provides a case in point. The Hauge collection includes two examples, one with ash glaze and a handle (cat. no. 68) and one with iron glaze (cat. no. 67). This spouted vessel form originates in Indian vessels for pouring water. Stone bas-relief murals show that vessels of this shape were used in circumstances that probably pertain to daily life—in the royal court, not the village. (In the case of such representations, there is no way of knowing whether the vessel depicted was made of metal or ceramic.) For example, an attendant carrying such a vessel appears in a bas-relief on the south side of the external gallery of the Bayon (circa 1200), depicting a royal banquet in the forest; the servant holds the vessel against his chest with one wrist beneath the body, the other around the neck, in what Groslier described as a gesture of respect.[46] A conical lid protects the contents of the vessel. In another Bayon bas-relief, showing a house on stilts accessed by a set of steps, a spouted ewer with conical lid sits on a low platform at the foot of the steps. It rests on a flat tray supported by three elaborately detailed recurving feet, probably made of cast bronze. The ewer presumably is there to be used for drinking water, or for washing the hands (and feet?) before ascending the stairs.[47]

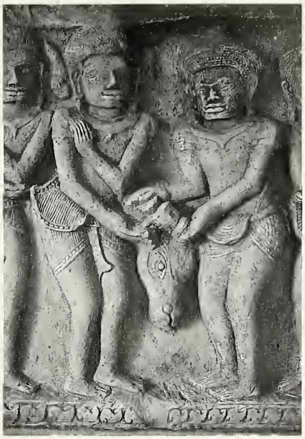


FIG. 15. DETAIL OF KHMER SANDSTONE LINTEL SHOWING EWER USED IN ASVAMEDHA CEREMONY. PHIMAI NATIONAL MUSEUM

Ewers were also used in court rituals. A twelfth-century sandstone lintel from the main sanctuary at Phimai in Buriram Province, Northeast Thailand, now on view in the Phimai National Museum, depicts the Vedic *asvamedha* ceremony, originating in India and performed by a king to establish his domain (fig. 15). A chosen horse was consecrated and released to roam at will for a year. The king and his army followed the horse, challenged the rulers of foreign territory into which it wandered and, if successful, sacrificed the horse at the end of the year.[48] The lintel depicts two rows of men facing a horse's head in the center, above which one man (the victorious king?) pours water from a spouted ewer over the right hand of another (the vassal ruler?).[49]

Spouted ewers also appear explicitly as Buddhist ritual vessels in stone relief sculptures of the Buddha calling the earth to witness, on view in the National Museum, Phnom Penh. In one, a sandstone piece from the Bayon, dated early thirteenth century, a ewer holding five lotus buds arranged side-by-side rests directly beneath the throne on which the Buddha is seated.[50] Probably this scene reflects the use of ewers on Buddhist altars, holding bouquets of lotus buds, Buddhist emblems of spiritual purity. Ewers were also part of the ritual equipment of Hindu temples, used for lustrations of the images.[51]

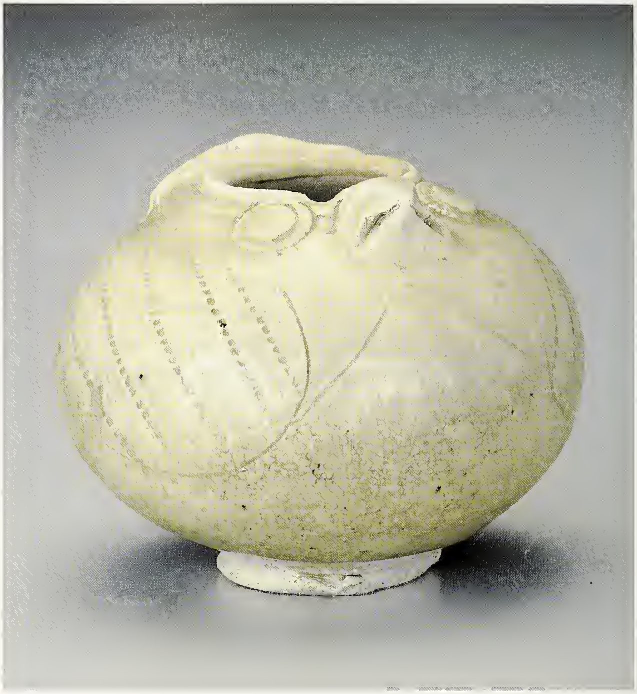
Spouted ewers were among the abundant Khmer glazed stoneware recovered from the archaeological site of Sras Srang, which Bernard Groslier excavated in 1964.[52] The site, located along the north side of the Sras Srang *baray* (rectangular pool), was the first cemetery to be identified in the Angkor region.[53] It proved to contain more than two hundred burials, with some three hundred bronzes and over one thousand ceramics. The site was used during two periods, in the second half of the eleventh century and again from the early thirteenth through fifteenth century. In each period, the ritual area was defined by clusters of three large jars buried at the four corners. The cremated remains were interred in ceramic containers of various sorts, surrounded by offerings that included other ceramics (both Khmer and Chinese), clay votive plaques, bronze mirrors, iron weapons, and lead ingots. The bronze objects included both Mahayana Buddhist and Hindu images, demonstrating the eclecticism of personal religious practices in Angkor.

The Khmer stoneware ceramics from this site were of various shapes and, according to Groslier, of various dates. It appears that no standard shape was prescribed for use in burial; any appropriate vessel at hand, including pieces that might have been passed down in a household for several generations, could be put to use, especially for the supplementary offerings. Thus the earlier level of the Sras Srang burial yielded a single elephant-shaped vessel, broken in half but carefully placed within a larger jar.[54] It also produced a sole brown-glazed anthropomorphic vessel, the neck of which had been neatly sawn off.[55] From this find it has been surmised, but certainly not proven, that anthropomorphic vessels were made specifically for funerary use. The "sacrifice" of ceramic vessels for ritual burial, by breaking the neck or puncturing the bottom, seems to have been a longstanding Khmer practice, which Groslier found at sites as early as the seventh century.[56]

The Sras Srang burial may have yielded the one example of a clearly "functional" use of Khmer stoneware ceramics. From the upper level was unearthed a group of three large vats (similar to cat. nos. 74, 75) "stuffed to the breaking point" with bronze Buddhist votive objects ranging in date from the twelfth through the fifteenth century. It is possible that this was not part of the cemetery as such but an emergency deposit made in expectation of imminent catastrophe, such as one of the Siamese attacks on Angkor.[57]

In contrast to the contents of the Sras Srang burial, the excavation of the eleventh-century stone temple of Prasat Ban Phluang, located in what is now Surin Province, Northeast Thailand, provides one of the few published inventories of ceramics found in association with a temple, albeit a small provincial one.[58] When erecting a sacred building it was customary to bury a group of objects, including ceramics (sometimes the vessels for the deposit), beneath an inscribed stone in the sanctuary.[59] Foundation deposits, like burials of cremated human remains, however, used a variety of materials, not all necessarily new. The foundation deposit of Prasat Ban Phluang had been disturbed sometime in the past, but fragments of nearly four hundred high-fired ceramics were found in the vicinity of the temple. (The majority of these vessels were Khmer stoneware, mostly products of kilns in Buriram Province, or Khmer earthenware; only a few Chinese ceramics were found.) From the location of the sherds, the investigators proposed that most had been used as offerings. In addition, it is possible that some were used by the temple priests for daily rituals. Ash-glazed pieces in a limited range of shapes, including wide-bottomed bowls, small jars, covered cylindrical jars, covered boxes, and two conch-shaped vessels (compare cat. no. 61), constituted one quarter of the glazed ceramics. Unglazed stoneware vessels included basins and wide-mouthed bottles of types now associated with the kilns near Angkor. The iron-glazed wares included, in addition to shapes also found with ash glaze, a bowl-shaped vessel with interior stand (compare cat. no. 72), narrow-footed cups (compare cat. no. 71), and a variety of large jars, both pedestal-based and flat-based, with wide mouths or trumpet-shaped mouths, and large vats

Cat. no. 58. Bird-shaped lime-paste jar, probably Thailand, Buriram Province, 11th–12th century, white stoneware with ash glaze, 7.0 x 9.0. Gift of Osborne and Gratia Hauge, S1996.146



58

(compare cat. no. 74). One two-color glazed pedestal-based jar was present. Notably absent were lime pots and zoomorphic vessels.

Many Khmer zoomorphic vessels have been found to contain hardened lime paste (calcium hydroxide), one of the primary ingredients in the betel quid (e.g., cat. no. 58). Assuming that the lime deposits in Khmer vessels date to the Angkorean period and are not the result of ongoing use of these vessels in later times, they show that Angkorean Khmers used the zoomorphic stonewares as well as a variety of plain covered jars (cat. no. 55), as "lime pots." (The lime paste must be kept in a tightly closed container to prevent its drying out; therefore the opening in the back of an anthropomorphic vessel is small. The paste was removed with a little scoop or with a fingertip.) The betel quid is chewed as a digestive and stimulant, but it also has an important role in hospitality to guests and in rituals such as weddings.[60] Thus the variety of lime pots among glazed Khmer stonewares may be more properly defined as "ritual" rather than as "utilitarian" ceramics. Although they appear to be based in form upon bronze or silver vessels, they, like the more costly metal versions, may well have been used in gift exchange.[61]

Another essential part of the formal set of betel-chewing paraphernalia was the spittoon. Cambodian bronze spittoons of unknown date on view in the National Museum, Phnom Penh, are flat-bottomed vessels with swelling shoulders and wide mouths, often ornamented by bands of incised lines just below the rim. Perhaps some of the similar bowl shapes in Khmer ash-glazed stoneware (cat. nos. 63, 70) were used for that purpose.

Zoomorphic vessels occur in many forms, including elephants, horses, cats, anteaters, various birds, rabbits, turtles, and frogs. Among pieces recovered from the Buriram Province kilns, birds and elephants appear most numerous. Art historian Jean Boisselier, writing from the perspective of his Angkor-centered research, however, noticed that frogs and turtles were numerous, while elephants and rabbits were rare.[62] The majority of these pieces appear to have been used as lime pots. Many bird-shaped lime pots are characterized by a sharp, hooked beak, large round eyes, and tail modeled and attached to a wheel-thrown jar, with wings indicated by incising (cat. nos. 57–60). These vessels have commonly been identified as "owls." Cambodian anthropologist Ang Choulean, however, identifies this bird as an *ak,* the raptor *Haliaetus leucogaster,* a white-bellied sea eagle common in the Angkor region. According to him, people in present-day Siem Reap Province refer to all lime-paste vessels as *ak kaṃpor* (*kaṃpor* is the Khmer term for lime paste).[63] Some versions of this type of bird vessel bear four such faces looking in four directions. The deeper meaning of this association between the *ak* and the betel-quid remains to be explored.

The function of the largest zoomorphic vessel in the Hauge gift remains a puzzle. The elephant-shaped vessel (cat. no. 76) has a small opening on the back, but it also bears a spout on the proper right shoulder. Such spouts appear on a number of other zoomorphic Khmer vessels (including one in the form of a seated monkey holding the spout between its upraised front paws[64]), as well as in the lotus held by the double-figured anthropomorphic vessel in the

Hauge gift (cat. no. 83), suggesting that the vessels are ewers. The possible association of the elephant-shaped pouring vessel with water suggests the Hindu iconography of Gaja Lakshmi, the lustration of the goddess by two flanking elephants. The anthropomorphic vessel in the form of two figures seated back-to-back, holding lotus blossoms (one of which is a spout), may, on the other hand, have Buddhist associations. The figures' posture, with hands folded in prayer and both legs bent to one side or the other, is that adopted by worshipers in present-day Theravada Buddhist worship. It echoes that of a well-known fifteenth- or sixteenth-century wooden figure in the National Museum, Phnom Penh, that is known to come from a post-Angkorean Theravada Buddhist context.[65] (Stone sculptures and murals from the Buddhist monument of the Bayon, circa 1300, by contrast, show people seated with one knee up or kneeling on both heels.) If the Theravada association is correct, this vessel might have been used for the Theravada ritual of pouring water for the spirits of the ancestors.

Whether any Khmer glazed stoneware vessels were "simply utilitarian" remains to be demonstrated through archaeological excavations of domestic sites. The sole first-hand observations of everyday life in Angkor were left by a Chinese envoy, Zhou Daguan, who spent 1296–97 in Angkor.[66] Observing the dining customs of the Khmer, Zhou was struck by the absence of tables and chairs: diners sat on mats spread on the floor. Zhou noted that they used "Chinese dishes of clay or copper" for serving rice but, for serving and sipping sauce, they used bowls and spoons folded from leaves that were discarded after every meal. (The very wealthy used vessels of silver or gold.) Diners were also provided with bowls of pewter or clay holding water used for washing their hands (because they ate rice with their fingers). Wealthy people drank wine from pewter cups, poor from clay.[67] Might some of the wide-based ash-glazed bowls produced in such quantities at the Buriram kilns in particular (cat. nos. 63, 70) have served as finger bowls for households situated socioeconomically between the pewter users and the clay users—or as provincial substitutes for metal? Could the small hemispherical brown-glazed cups (cat. no. 71) be vessels for wine? Since examples of both vessel types also appeared among the Prasat Ban Phluang finds, however, a multivariant definition of "use" might be imagined for them. (The National Museum, Phnom Penh, displays undated, flat-bottomed brass bowls [with stands] described as "for ritual water.")

Both anthropomorphic and zoomorphic vessels come to mind from Zhou's account of a puberty ritual for daughters of wealthy Khmer families, for which was constructed a high platform used to display clay figures of humans and animals.[68] The Chinese term for clay indicates that the figures were unfired, and they may well have been related to the unfired clay images shaped over wood and straw armatures made for Hindu rituals in South Asia. If so, they would have been destroyed by immersion in water at the conclusion of the ritual. Nonetheless this documentation of clay figures made for ritual use further supports the likelihood of a non-utilitarian purpose for the glazed stoneware figures also.

Jean Boisselier pointed out that Khmer inscriptions list objects only in their roles as ritual utensils or as materials dedicated to a temple establishment, although many objects so listed might equally well have played a role in domestic settings.[69] In some cases inscriptions on the objects themselves identify that specific vessel as a cult object. One of the few known ceramic vessels with an inscription is a tall cylindrical jar (of the type represented by cat. nos. 74, 75), now in the Ubon National Museum in Northeast Thailand, that bears on its shoulder a proper name—presumably that of the elite donor.[70] Today in Puri, in the eastern Indian state of Orissa, potters prepare jars of this size and shape to be used both for storage of grain in households and for preparation of special cooling beverages presented as offerings to the Vishnuite deities of Jagannātha Temple.

RELATIONSHIPS TO OTHER INDIGENOUS MEDIA AND REGIONAL TRADITIONS

If the majestic form and presence of the monumental stone temple-mountains may be taken as the aesthetic apogee of Angkorean period art, Khmer stoneware ceramics can be seen as one of the many echoes of those forms in smaller scale, simpler form, and different material. The visual cohesiveness at all levels of Angkorean material culture is one of its remarkable features. These correspondences apply to both form and decoration.

Study of the stone monuments reveals, in turn, a reflection in more enduring materials of an architecture of wood, now almost entirely lost. The expressive carving on tenth-century stone monu-

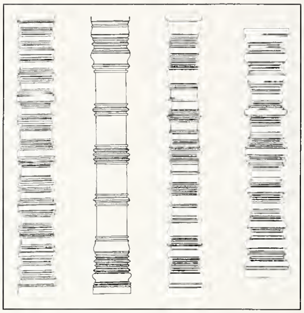


Fig. 16. Lathe-turned sandstone balusters from windows of Khmer monuments. After Jean Boisselier, *Le Cambodge* (Paris: A. and J. Picard, 1966), fig. 47

ments in particular shows that the stonecarver's aesthetic was shaped by the woodworker's approach to material, both in the crisp cutting of curving floral motifs around doorways and window frames and in the turning of the columns, pilasters, and balusters.[71] (Later monuments lost this individual touch in repetitive, mechanical motifs.) The lathe-turned balusters, in particular—series of which filled window openings like a grill (fig. 16)—reflect the lathe-carved wooden forms that must have been their models, while both are echoed in the rhythmically undulating contours of many Khmer stoneware jars with their tiers of wheel-carved flanges. Jars with columnar necks and pedestal bases (cat. nos. 65–68) are aptly known as "baluster jars." Surely the Khmer potters manipulated clay on their potters' wheels with acute awareness of the forms turned out on woodworkers' and stoneworkers' lathes.

Khmer stoneware ceramics also show multiple levels of correspondence with metal. In the South Asian-influenced Khmer hierarchy of materials, metals stood above ceramics, with gold at the pinnacle. Very few gold or silver Angkorean vessels survive, but extant bronze vessels are sufficient to show a close relationship among many vessel forms executed in bronze and stoneware clay. Bronze bottles and ewers correspond to those forms in glazed stoneware, with details more finely rendered by virtue of the material. A number of small bronze zoomorphic vessels have been recovered from burials in the Phimai region of Northeast Thailand, including one in the shape of a songbird and another in the form of a reclining deer.[72] Details of the faces and limbs of these vessels (cast using the lost-wax technique) are outlined with two parallel lines filled with hatching—such as also appear on some ceramic anthropomorphic and zoomorphic vessels (cat. nos. 62, 76, 83). Similarly, a correspondence can be seen between the schematic rendering of the faces on anthropomorphic vessels—especially the puffy eyes and swollen lips—and the faces of coarser varieties of cast-bronze images, perhaps the sorts of images that clay-workers had the most likelihood of seeing.[73]

In these instances, the bronze and glazed ceramic versions of the same vessel forms appear destined for customers of differing social status, rather than the latter's being a "copy" of the former. It can be imagined that changes in style were reflected in both materials. Bernard Groslier felt that the pale green ash glaze over white clay used in the small ceramic lime pots conveyed a relationship to silver: such ceramic vessels were "the 'silverware' of the poor."[74] Similarly he saw large ceramic vessels with brown glaze as corresponding to the color of polished bronze vessels.

A different relationship is seen in the elephant-shaped ceramic vessels (cat. no. 76) that echo in greatly reduced size the monumental bronze sculpture of a three-headed elephant (vehicle of the Vedic god Indra) cast in the late twelfth or early thirteenth century and now in the Arakan pagoda in Mandalay, Burma (Myanmar).[75] (Monumental stone elephants are also known.[76]) In this case, the elephant-shaped ceramic vessels reflect figural sculptural conventions followed in other materials in larger scale, much as Khmer ceramic vessel forms mirror architectural forms.

As rare surviving pieces of Khmer gold jewelry attest, and as three-dimensional stone images and the relief murals of the Bayon also show, the elite society of Angkor wore lavish sets of jewelry and followed established conventions for its variety and placement. Bands of gold encircled the noble wearer's forehead, neck, upper arms, wrists, waist, and ankles, and heavy gold earrings stretched the ear lobes. Jewelry of this type is suggested on the anthropomorphic vessels (cat. nos. 54, 79, 83). In a more abstract sense, many Khmer vessels, particularly the varieties of "baluster jars," may be said to be adorned in a similar fashion by the bands of incised or relief decoration that define the mouth rim, the angle between neck and shoulder, the shoulder, the hip, and the foot. Crosshatch combing in the ceramic version evokes the chased ornament on heavy gold belts or armlets. Some jars even wear "necklaces" of applied bits of clay that closely resemble the pendant ornaments on the jewelry of some carved stone figures (cat. no. 66).

Both bronze and glazed ceramic replicas exist of a precious imported object, the conch shell, that had dual ceremonial importance in Angkor, both as ritual lustration vessel and (with hole drilled in the crown) as horn. (Zhou Daguan described the resonating conch-shell horns that announced the approach of the ruler for his daily audience in the palace.[77]) As we have seen, conch-form horns in glazed stoneware (cat. no. 61) faithfully replicated in clay the interior chambers of the shell that create its resonant sound.

Certain other aspects of the form of Khmer glazed stoneware vessels relate to the earthenware vessels that were produced in the

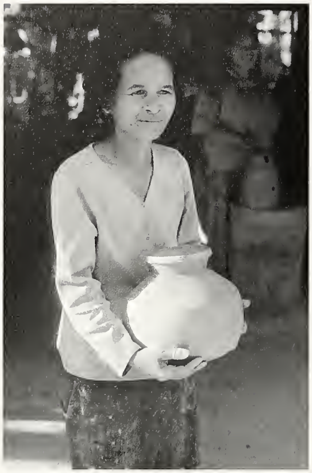


Fig. 17. Potter holding water jar, Kompong Chhnang, Cambodia, 1997

region long before stoneware and have continued to be made to the present day. With regard to the prototypes for the forms of many distinctive Khmer ceramic jar forms, art historian John Guy has pointed out the likelihood of their being based on Indian metal prototypes—vessels that might have been brought to Southeast Asia during the early centuries of contact and created the repertory of ritual vessel forms in local usage.[78] We do not know when Khmer metalsmiths began casting and raising bronze vessels. Locally made earthenware replicas of Indian vessels (especially the wheel-turned earthenware found in excavations by the late sixth century, although hand-built pottery is perfectly capable of assuming such forms) may well have served as a bridge between the metal originals and the glazed stoneware forms, which seemingly do not appear in great numbers until the development of iron glaze sometime in the eleventh century.

A slightly separate question pertains to the ultimate origin of the "baluster jar" as a ceramic (or metal) vessel shape. It may be that the pedestal-footed vessel in either material originates with a round-bottomed earthenware vessel placed on a separate dumbbell-shaped stand when used as a ritual vessel. The Khmer pedestal base incorporated the stand into the vessel form.

An enduring and powerful aspect of Khmer ceramic jar form (also reflected in surviving bronze vessels) is the invariable placement of a horizontal line slightly above the fullest part of the body, which tends to occur well above the midpoint (cat. nos. 65–67, 73). This line effectively emphasizes the swelling fullness of the body beneath it, which often tapers to a narrow foot balanced on an everted base. This approach to formal design survives in earthenware drinking-water jars made by Cambodian village potters today (fig. 17).

EXCHANGE AND TRADE

The distribution of Khmer stoneware ceramics in archaeological sites and scattered finds seems to correspond closely to the outer boundaries of the territorial expanse of Angkorean influence within mainland Southeast Asia. There is little if any evidence that Khmer stonewares ever entered the dynamic network of international trade that swept up Vietnamese, Cham, and Thai ceramics by the mid-fourteenth century. Indeed, by that time, according to present interpretation, Khmer glazed stoneware production seems to have ceased.

The distribution of Khmer ceramics within the outlines of the Angkorean domain reinforces the sense that their primary role was closely linked to the religious and social rituals identified with Khmer culture and their market was defined entirely by this function. The distribution of Khmer stoneware followed the spread of that culture, a process mapped most clearly by surviving remains of Khmer-style stone monuments and associated sculpture and inscriptions in present-day Vietnam, Laos, and Thailand.[79] No Khmer ceramics have been uncovered in the seaborne trade-route destinations of insular Southeast Asia, West Asia, or Japan. The Chinese envoy Zhou Daguan, listing trade goods sought by Chinese merchants in Angkor in the late thirteenth century, made no mention of ceramics. From the Chinese perspective, he saw value in the natural resources of the highlands, including rare wood, elephant ivory, rhinoceros horn, kingfisher feathers, and lacquer sap. All these raw materials were destined to be transformed at the hands of Chinese crafts specialists.

Conversely, imported trade goods, including ceramics, played an important role in Khmer material culture. In Zhou's list of the Chinese goods sought by the Khmer, finished products predominated—chief among which were multicolored silk textiles, pewter from Zhenzhou, lacquered trays from Wenzhou, and celadon ceramics from Quanzhou.[80] (The exceptions were unworked gold and silver, which Zhou said were not mined locally.) Zhou identified these products by the seaports from which they were shipped, reflecting the bureaucratic organization of Chinese foreign trade.[81] The green-glazed ceramics dispatched to Angkor from Quanzhou were gathered from the numerous kilns operating in southern Fujian Province that produced celadon, white and *qingbai* porcelain, and brown and black-glazed ware. These wares found their way to diverse destinations including Japan and the Philippines.

Archaeological finds of Chinese ceramics within the Angkorean domain demonstrate that Khmers were eager consumers of Chinese ceramics and that quantities increased exponentially over time. In the excavations that Bernard Groslier conducted within the royal palace site, he found that for every one Northern Song (960–1127) Chinese ceramic sherd, there were two Southern Song (1127–1279) sherds, three Yuan (1279–1368) sherds, and four early Ming (1368–1644) sherds.[82] He felt that even the Northern Song sherds outnumbered those of local glazed stoneware.[83]

Later levels of excavations also yielded the sorts of Southeast Asian glazed wares that entered the international trade network. Thai wares uncovered during the 1996–98 French excavations at the royal palace included celadon-glazed and brown-glazed stonewares from the Si Satchanalai (also known as Sawankhalok) kilns and dishes with iron-painted fish motifs from the Sukhothai kilns; Northern Vietnamese iron-decorated dishes were also found. These pieces date from the fourteenth century and later, presumably post-dating the latest production of Khmer glazed ceramics. The abundance of Thai wares in particular reflects not simply the absence of Khmer pieces but the increased cultural as well as political dominion of the Ayutthaya kingdom in the region. Found in abundance at Angkor sites are small, brown-glazed Si Satchanalai bottles, whose function in Ayutthayan culture is not understood. It might be reasonable to speculate that their presence in Cambodia offers evidence of a ritual role for such bottles in the Theravada Buddhist practices that spread to Angkor by the fourteenth century, largely replacing the Brahmanic and Mahayana Buddhist practices of earlier times.[84]

The question of how to interpret the influence of the imported Chinese ceramics on Khmer glazed stoneware production involves both style and technology. Groslier believed that Angkorean production of glazed stoneware was complementary to imports coming from China, ceasing to make shapes (boxes and bowls especially) that were superior in their Chinese versions and concentrating on a limited number of forms for which Chinese imports provided no substitutes.[85] Fragments of Chinese qingbai porcelain boxes have been found mixed with Khmer stonewares at kiln sites in the Ban Kruat region, showing that Khmer potters sometimes had their models directly at hand.[86]

Recently the Japanese scholar Tsuda Takenori has challenged this view of strictly one-way influence, pointing out that Chinese export-centered kilns were always highly pragmatic in their response to overseas markets.[87] Some shapes found among Chinese ceramics made largely for export at coastal kilns are not Chinese at all but instead replicate shapes preferred by their destination markets (for example, the *kendi* form of spouted ewer made for various Southeast Asian markets). Tsuda also notes that the shapes in early Khmer glazed stonewares said to "imitate" forms imported from kilns in Guangdong Province—boxes and small bottles—constitute only one minor aspect of the highly diverse production at those Chinese kilns. He suggests that the Khmer market for Chinese ceramics was discriminating, accepting only the shapes that suited local needs.[88] Indeed, it is not impossible that Chinese merchants could have conveyed models to the Chinese kilns in the form of Khmer wheel-thrown earthenware bottles based on Indian-inspired metal shapes. The Phimai National Museum owns an eleventh-twelfth century Chinese qingbai porcelain vessel found in the Phimai sanctuary, whose cylindrical form with overlapping knobbed lid faithfully corresponds to the ash-glazed or unglazed cylindrical lidded vessel known from Khmer sites from as early as the ninth century (cat. no. 53). It remains to be established just where the form originated.

At the very least, the questions of stylistic relationships and technological relationships have to be considered separately, and the assumption that the technology package for glazed stoneware was introduced from a kiln in Guangdong Province just because early Khmer ash-glazed ceramics resemble wares from those kilns needs to be treated with caution. Archaeological excavations at the Khmer kiln sites in Buriram Province, Northeast Thailand, and in the Angkor region indicate that the Khmer kilns show some similarities to the "dragon" (*long*) kilns of southeastern China, including their construction atop artificial mounds. But the technological resemblances must extend to the kiln stacking devices before a precise "origin" for Khmer stoneware technology can be confirmed. Tsuda points out that the Tani kilns make use of small clay wedges for propping up vessels, whereas no such tools are reported for the Guangdong kilns. Conversely, the Guangdong kilns made use of a variety of other props not yet found at the Tani site.[89]

The repertory of Khmer glazed stoneware richly represented in the Hauge collection gives us access to the makers and consumers of such wares in the Angkorean period in a way that stone monuments and royal chronologies cannot. Khmer stoneware ceramics demonstrate a preference for stately architectural forms underscored by geometric decoration and simple glazing in green, brown, or both colors. They also reveal the Khmer potter's skill at deftly transforming vessels into human or animal shapes and suggest the users' appreciation of such metaphorical vessels. Although ceramics constitute just one aspect of Khmer material culture—a category presumably subordinate to vessels of precious metals or to imported Chinese ceramics—they have survived in the way that fired clay objects do, and they pose many unanswered questions surrounding their manufacture and use and the society that created them. Fortunately, the way is now open for renewed research that should bring us many new answers.

NOTES

1. See Stanley J. Tambiah, "World Conquerer and World Renouncer: A Study of Buddhism and Polity," in *Thailand Against a Historical Background* (Cambridge: Cambridge University Press, 1976), 102–11. Also see Charles Higham, "The Angkorian *Mandala*: A.D. 802–1431," *The Archaeology of Mainland Southeast Asia* (Cambridge: Cambridge University Press, 1989), 321–55; and David Chandler, *A History of Cambodia* (Boulder, Co.: Westview Press, 2000), 9–76. For a general discussion of early mainland Southeast Asia, see Keith Taylor, "The Early Kingdoms," *The Cambridge History of Southeast Asia* vol. 1, ed. Nicholas Tarling (Cambridge: Cambridge University Press, 1992), 137–82.

2. Thierry Zephir, *Khmer, the Lost Empire of Cambodia* (New York: Harry N. Abrams, 1998), 90.

3. Bernard P. Groslier, "Introduction to the Ceramic Wares of Angkor," in *Khmer Ceramics: 9th–14th Century*, ed. Diana Stock (Singapore: Oriental Ceramic Society, 1981); Roland Mourer, *La Poterie au Cambodge: Histoire et Développement. Essai d'Ethno-technologie* (Paris: École des Hautes Études en Sciences Sociales, 1986), doctoral dissertation, 3 vols.

4. Groslier, "Introduction to the Ceramic Wares of Angkor," 14–15. An earlier date for the first appearance of wheel-thrown earthenware ceramics in the Mekong Delta has been indicated by recent work of archaeologists at the pre-Angkorean site of Angkor Borei (Miriam Stark et.al., "Results of the 1995–1996 Archaeological Field Investigations at Angkor Borei, Cambodia," *Asian Perspectives* 38, no. 1 [1999], 29).

5. The presence of updraft kilns used to fired earthenware has been reported for the kiln sites in Buriram Province, Northeast Thailand (Tharapong Srisuchat and Amara Srisuchat, "Introducing Buriram Ceramics and Kilns," *The Silpakorn Journal*, 33, no. 2 [May–June 1989], 52). The two earthenware vessels in the Hauge collection probably were made at a site in Northeast Thailand.

6. See Roxanna M. Brown, *The Ceramics of South-East Asia*, 2d ed. (Singapore: Oxford University Press, 1988), pls. XX-a (jar) and 25-a (basin).

7. Groslier, "Introduction to the Ceramic Wares of Angkor," 27.

8. The posture of these figures, associated with Theravada Buddhist worship, differs from the position of veneration (with one knee up) represented in murals in Angkorean monuments; this may help date the vessel to the late Angkorean or even post-Angkorean period.

9. Sculptures in human form include an iron-glazed Buddha seated in meditation on the serpent Mucalinda in the Art Gallery of South Australia (John Guy, "A Reassessment of Khmer Ceramics," *Transactions of the Oriental Ceramic Society* 61 [1996–97], fig. 32), an ash-glazed male torso wearing a loin-cloth (Sathaporn Khwanyuen, "The Excavation of Baranae Kiln Site, Thailand," in *SPAFA Final Report, Technical Workshop on Ceramics* [Bangkok: SPAFA, 1985], 142, 165), and an iron-glazed male torso, probably a deity (Hiroshi Fujiwara, *Khmer Ceramics from the Kamratan Collection in the Southeast Asian Ceramics Museum, Kyoto* [Singapore: Oxford University Press, 1990], fig. 126). An unpublished ash-glazed female seated figure is in the collection of the Wittayakan School, Ban Kruat District, Buriram Province.

10. The three cow bells excavated from the Khok Lin Fa kiln site, Ban Baranae, Lahansai District, Buriram Province, are shown in Sathaporn, "The Excavation of Baranae Kiln Site, Thailand," 142, 166. One bell found at another Ban Baranae kiln site bore a three-character Khmer inscription that has not been interpreted (Tharapong Srisuchat and Amara Srisuchat, "Introducing Buriram Ceramics and Kilns," *The Silpakorn Journal* 33 no. 2, fig. 10).

11. Groslier, "Introduction to the Ceramic Wares of Angkor." The French-language text of Groslier's essay was published posthumously, with some notes and amendments, as "Introduction à la Céramique Angkorienne (fin IXe—début XVe s.)," *Péninsule* 31 (1995), 5–59.

12. Brown, *The Ceramics of South-East Asia*, 50–53.

13. Working at the very beginning of serious study of trade ceramics, Groslier also was obliged to develop his own chronology for Chinese provincial ceramics of the sort found in Angkorean sites. B. P. Groslier, "Our Knowledge of Khmer Civilization, a Re-appraisal," *Journal of the Siam Society* 48, part 1 (June 1960), 17–18.

14. This study is being conducted by Marc Franiatte of the French Archaeological Mission in Cambodia. Marc Franiatte, "Nouvelles analyses de la céramique khmère du Palais royal d'Angkor Thom: Étude préliminaire," *Udaya, Journal of Khmer Studies* 1 (2000). On imported ceramics in the palace site, see Marie-France Dupoizat, "La céramique importée à Angkor: étude préliminaire," *Arts Asiatiques* 54 (1999), 103–16.

15. I am grateful to Pamela Vandiver, Smithsonian Center for Materials Research and Education, for illuminating discussions of the properties and technology of Khmer stoneware ceramics.

16. Khmer potters may well have followed procedures similar to those used by potters making unglazed stoneware in Northeast Thailand today, mining their clay from underground veins reached from deep pits and soaking the hard chunks in

water to make a workable mass that was kneaded and used without any additions. Archaeologists who excavated at the Khok Lin Fa kiln site (cf. n. 10) in Ban Baranae, Lahansai District, Buriram Province, in 1984, found a large pit with a diameter of fifteen to twenty meters that they interpreted as the clay pit for the workshops connected to the thirty kilns in that site. Sathaporn, "The Excavation of Baranae Kiln Site, Thailand," 143.

17. A Japanese example is shown in Louise Allison Cort, *Shigaraki, Potters' Valley* (Tokyo: Kodansha International, 1979), figs. 267–73.

18. An alternative hypothesis, not yet confirmed by experimentation, is that molds (perhaps made of low-fired clay) attached to the wheel head were used to shape the base of bowls and other small vessels: with the wheel spinning, a lump of clay was pressed into the mold, then thrown to form the vessel. This would account for the low but pronounced "foot rim" around the perimeter, seemingly not formed by trimming yet higher than the wrinkled surface of the base. This time-saving procedure would eliminate a separate step to trim the base. It would also help to account for the characteristic presence of a tall bevel on the wall above the base of many Khmer ceramic forms, most notably bowls, but also small jars; the height of the bevel might represent the height of the mold, over the upper edge of which the potter inserted a cutting tool to incise a groove in the vessel wall. Typical of Khmer ceramic decoration, such a bevel might also have helped control the flow of glaze toward the foot.

19. The most striking example of this ornamental use of incised lines filled with iron pigment under an ash glaze appears on an elephant-shaped lime pot in the National Museum of Cambodia, Phnom Penh (illustrated in John Guy, *Ceramic Traditions of South-East Asia* [Singapore: Oxford University Press, 1989], pl. 7).

20. *A Ceramic Legacy of Asia's Maritime Trade* (Kuala Lumpur: Southeast Asian Ceramic Society and Oxford University Press, 1985), 5–6 and nos. 105–11.

21. John Stevenson and John Guy, *Vietnamese Ceramics, A Separate Tradition* (Chicago: Art Media Resources with Avery Press, 1997), no. 155 and others following.

22. Ibid., no. 61 and others following.

23. According to Roxanna Brown (*The Ceramics of South-East Asia,* 44), combed decoration appears on ceramics from the Northeast Thai kilns by the mid-eleventh century.

24. Tsuda Takenori, "Khmer Green Glazed Wares in the Early Period," *Oriental Ceramics* 28 (1998–99), 123.

25. Groslier, "Introduction to the Ceramic Wares of Angkor," 23, 27. Groslier proposed, but did not have excavated evidence to prove, that the brown glaze appeared by the end of the tenth century.

26. When Roy Galloway visited the Ban Kruat kiln site in 1973, villagers told him that the nearest known source of white clay lay several kilometers to the south, across the present border with Cambodia.

27. Groslier, "Introduction to the Ceramic Wares of Angkor," 26–27.

28. Etienne Aymonier, *Les Provinces Siamoises. Le Cambodge,* vol. 2 (Paris: Ernest Leroux, 1901), 414.

29. Some of these finds from Phnom Kulen were published in A. Silice and George Groslier, "La Céramique dans l'Ancien Cambodge (Essai d'Inventaire Général)," *Arts et Archéologie Khmers* 2 (1924–26), pl. 10, nos. 9–13. Similar pieces appear in Brown, *The Ceramics of South-East Asia,* 43, fig. 30.

30. While archaeological investigations have focused on kilns within Buriram Province, leading to use of the term "Buriram kilns" as equivalent to Khmer kilns sites in Northeast Thailand, finds of Khmer ceramics have been made much more widely and kilns may be located elsewhere as well. Traveling through Khorat Province (to the west of Buriram) in the 1880s, Etienne Aymonier described a ruined sanctuary surrounded by a wall and moat and, nearby, an earthen dike running east-west with "debris of glazed pottery" scattered along the top, much as he described the finds on Phnom Kulen—although he did not mention kiln debris (Aymonier, *Les Provinces Siamoises,* 104). I am grateful to Leedom Lefferts for this reference.

31. Mrs. Suwanna Bansong, a teacher at the Wittayakan School, Ban Kruat District, recalled how villagers happily sold kiln mounds "by the truckload" to outside people (agents of Bangkok antique dealers?) willing to pay to clear their fields. Realizing the loss to the local cultural record, she initiated the formation of a collection of sherds to be kept at the school. The debris from kiln mounds became the source of nearly complete pieces but also of fragments that were artfully joined together and sold to unsuspecting collectors. Many pastiches appear in collections formed in the 1960s and 1970s.

32. Sathaporn, "The Excavation of Baranae Kiln Site, Thailand," 137–68; Brown, *The Ceramics of South-East Asia,* 44–47; and Natthapatra Chandavij, "Ancient Kiln Sites in Buriram Province, Northeastern Thailand," in *Ancient Ceramic Kiln Technology in Asia,* ed. Ho Chuimei (Hong Kong: Centre of Asian Studies, University of Hong Kong, 1990), 230–43.

33. The Nai Jian kiln (excavated 1987) and Sawai kiln (excavated 1988), both in Ban Kruat District, are now protected as open-air museums. This interpretation is based on observation of these sites in the company of archaeologist Narasaki Shoichi and potter Matsubayashi Hosai XV and also draws upon an unpublished document kindly provided by archaeologist Don Hein.

34. No examples of the Guangdong boxes have been documented in Cambodia, but they were exported to Indonesia and the Philippines. James C. Y. Watt, "Hsi-ts'un, Ch'ao-an and other Ceramic Wares of Kwangtung in the Northern Sung Period," in *Guangdong Ceramics from Butuan and Other Philippine Sites,* ed. Roxanna M. Brown (Manila: Oriental Ceramic Society of the Philippines, 1989), 40, figs. 10, 12, nos. 81–83. The Khmer-Guangdong connec-

tion was discussed in Roxanna M. Brown, "Guangdong: A Missing Link to Southeast Asia," in *Guangdong Ceramics,* 81–85. Tsuda Takenori has cautioned, however, that kiln-stacking technology at the Tani kilns (as deduced from surface finds) differs from that reported for the Guangdong kilns. Tsuda, "Khmer Green Glazed Wares in the Early Period," 123–25.

35. In addition to Tsuda, "Khmer Green Glazed Wares in the Early Period," publications on the three sites include Aoyagi Yoji et. al., "Investigation of Tani Kiln Site Group, Angkor 6–18 August 1996," trans. Louise Cort, *Renaissance Culturelle du Cambodge* 15 (1998), 257–66, and Aoyagi Yoji et. al., "Report of the Fourth Investigation of Kiln B1, Tani Kiln Complex, Angkor Region," trans. Louise Cort, *Renaissance Culturelle du Cambodge* 16 (1999), 271–77.

36. I am indebted to Dr. Patrizia Zolese, head of the Wat Phu project, for showing me this site in 1997. Some archaeologists have proposed that the deposits indicate a rubbish heap rather than a kiln site.

37. Groslier, "Introduction to the Ceramic Wares of Angkor," 17.

38. Tsuda, "Khmer Green Glazed Wares," 124.

39. David J. Welch, "Archaeology of Northeast Thailand in Relation to the Pre-Khmer and Khmer Historical Records," *International Journal of Historical Archaeology* 2, no. 3 (1998), 208.

40. In present-day Cambodia, the long-distance distribution of earthenware produced in villages in Kompong Chhnang (Pot Province) is a striking feature of the economy—and one quite distinct from practices in Thailand and Laos—although it may represent a relatively recent concentration of production as other sources of earthenware closed down.

41. Nitta Eiji, "Ancient Industries, Ecosystem, and Environment: Special Reference to the Northeast of Thailand," *Historical Science Reports, Kagoshima University* 39 (1992), 610–80, quoted in Welch, "Archaeology of Northeast Thailand," 229.

42. This issue is a focus of ongoing research by Dr. Elizabeth Moore, School of Oriental and African Studies, University of London.

43. Groslier, "Introduction to the Ceramic Wares of Angkor," 21.

44. Stoneware produced in Cambodia today is made by Vietnamese potters.

45. Visiting the ruins of Khmer sacred sites in Northeast Thailand in the 1880s, Etienne Aymonier noticed "numerous fragments of ancient pottery" strewn all around the major shrine of Phnom Rung. Aymonier, *Les Provinces Siamoises. Le Cambodge,* vol. 2, 414. By contrast, archaeologist David Welch was struck that his excavation of Khmer habitation sites in the Phimai region yielded mostly undecorated earthenware, with glazed Khmer stoneware amounting to only one to three percent of the sherds. He interpreted this to mean that Khmer vessels were passed down as heirlooms—but it is equally possible that they simply did not reach this level of the population. Welch, "Archaeology of Northeast Thailand in Relation to the Pre-Khmer and Khmer Historical Records," 216–17.

46. Groslier, "Introduction to the Ceramic Wares of Angkor," fig. C.

47. Chou Ta-Kuan, *The Customs of Cambodia,* 2nd ed. (Bangkok: Siam Society, 1992), 60. Cast bronze bases of similar form are published in George Groslier, *Arts et Archaeologie Khmers* I, fasc. 2 (1921– 22), pl. XIII.

48. John Dowson, *A Classical Dictionary of Hindu Mythology and Religion, Geography, History, and Literature* (London: Trubner, 1879), 28.

49. Published in Michael Freeman, *A Guide to Khmer Temples in Thailand and Laos* (Bangkok: River Books, 1996), 91.

50. Published in George Groslier, "Les Collections Khmères du Musée Albert Sarraut a Phnom-Penh," *Ars Asiatica* 16 (1931), pl. X.

51. An ash-glazed ewer (or bottle—the physical description is minimal), said to have been found in Siem Reap Province and now in a private Japanese collection, bears an inscription on the body, in script associated with the eleventh century, that records the dedication of the vessel for the lustration of the sacred image by a government official. Ishizawa Yoshiaki, "Bin no hyomen ni kizamareta hikokumon ni tsuite (Concerning an epitaph inscribed on a bottle surface)," *Renaissance Culturelle du Cambodge* 14 (1997), 53–55.

52. Two ewers are published in Brown, *The Ceramics of South-East Asia,* pl. XXII-a, 26-c. The excavation is described in Paul Courbin, *La Fouille du Sras-Srang,* Collection de Textes et Documents sur L'Indochine XVII (Paris: École Francaise d'Extrême-Orient, 1988). Unfortunately almost all documentation for the excavation was destroyed after Bernard Groslier was forced to leave Angkor in 1972. For other objects recovered from the site, see Bernard Philippe Groslier, *Indochina* (London: Muller, 1967), pls. 71, 139–45, and Brown, *The Ceramics of South-East Asia,* pls. XVI, XX-XXIII, 24, 26–28.

53. Courbin, *La Fouille du Sras-Srang,* 21.

54. Ibid., 23.

55. Groslier, *Indochina,* pl. 144; Brown, *The Ceramics of South-East Asia,* pl. 28-c.

56. Groslier, "Introduction to the Ceramic Wares of Angkor," 14.

57. Courbin, *La Fouille du Sras-Srang,* 21, 25, fig. 42.

58. Vance Childress and Roxanna Brown, "Khmer Ceramics at Prasat Ban Phluang," *Arts of Asia* 8, no. 1 (January–February 1978), 66–73.

59. For example, a Khmer ash-glazed stoneware cylindrical lidded urn was used to bury a sacred deposit found in a mound in a rice field in Buriram Province, Northeast Thailand. The deposit included a silver bowl with Khmer inscription giving a twelfth-century date, a small stone image, a miniature turtle carved from a tuber and bound with silver foil, a wax candle, several cords, some bronze bells, and a number of stones and stone beads. This deposit was interpreted as a personal offering to Shiva as Lord of Phnom Rung, the major Khmer sanctuary located nearby (Nandana Chutiwongs, "To Kammratan Jaget Vnam Run," *The Silpakorn Journal* 33, no. 2

(May–June 1989), 56–63.

60. Present-day uses of betel in Cambodia (undoubtedly influenced by the predominance of Theravada Buddhism) are described in Solange Thierry, *Le Bétel. Inde et Asie du Sud-Est,* supplement to *Objets et Mondes,* 10, no. 3 (Paris: Musée de l'Homme, 1969), 229–54.

61. Socio-ritual aspects of the betel quid are discussed in P. A. Reichart and H. P. Philipsen, *Betel and Miang* (Bangkok: White Lotus, 1996), 23–32. In the nineteenth century the Siamese king and queen presented silver boxes for betel-quid paraphernalia to favored courtiers (50).

62. J. Boisselier, *Le Cambodge,* Manuel d'Archéologie d'Extrême-Orient part 1, Asie du Sud-Est, vol. 1 (Paris: Picard, 1966), 370. Boisselier also noted the abundance of fish-shaped objects.

63. The *ak* is said to cry loudly for its absent mate. An eighth-century temple on the edge of the West Baray in Angkor is called Ak Yum, "weeping *ak.*" I am grateful to Ang Choulean for this identification, to Frank Huffman for providing the Latin name, and to Pamela C. Rasmussen, National Museum of Natural History, Smithsonian Institution, for giving me the common name. The term is mentioned by Boisselier, *Le Cambodge,* 344 and 351, with regard to metal lime-paste containers but is not applied to zoomorphic ceramic containers.

64. Dawn Rooney, *Khmer Ceramics* (Singapore: Oxford University Press, 1984), pl. 48.

65. Helen Ibbitson Jessup and Thierry Zephir, eds., *Sculpture of Angkor and Ancient Cambodia: Millenium of Glory* (Washington, D.C.: National Gallery of Art, 1997), no. 117.

66. Zhou Daguan's memoir was translated by Paul Pelliot in 1902 and reprinted as *Mémoires sur les Coutumes du Cambodge de Tcheou Ta-kouan,* Oeuvres Posthumes de Paul Pelliot III (Paris: Librairie d'Amérique et d'Orient, 1951). An English translation is available as Chou, *The Customs of Cambodia.*

67. Pelliot, *Mémoires sur les Coutumes du Cambodge,* 30–31.

68. Ibid., 18; Chou, *Customs of Cambodia,* 18. I am grateful to archaeologist Miriam T. Stark, University of Hawaii, for first drawing my attention to this passage, and for her introduction to Geoff Wade, University of Hong Kong, who kindly provided the original Chinese text and his English version, part of a new translation of the Zhou Daguan document that he is preparing.

69. Boisselier, *Le Cambodge,* 330–31.

70. The inscription reads "Vrah kamraten an Sut Stuk." George Coedès, *Les collections archéologiques du Musée national de Bangkok,* Ars Asiatica 12 (Paris and Brussels: Editions G. van Oest, 1928), pl. XXVIII. The jar (with missing rim) is 45.0 centimeters high. "Vrah kamraten an" means "holy man of high rank"; Sut Stuk is taken to be a personal name. See also note 51 for another inscribed vessel.

71. Boisselier, *Le Cambodge,* 139–204.

72. The deer-shaped vessel was excavated from the Phimai site of Meru Brahmathat, a stupa erected to commemorate the death of Angkorean ruler Jayavarman VII (reigned 1181–1219). I am grateful to the director of the Phimai National Museum, Khun Tassanee Bhikul, for providing information on these pieces in the museum collection. A bronze vessel in the shape of a kneeling water buffalo in the Suan Phka Tevoda Collection is published in Piriya Krairiksh, *Khmer Bronzes* (Lugano, Switzerland: Corner Bank, 1981–82), no. 21.

73. Jessup and Zephir, *Sculpture of Angkor and Ancient Cambodia,* no. 108.

74. Groslier, "Introduction to the Ceramic Wares of Angkor," 35.

75. Boisselier, *Le Cambodge,* pl. LVII, 3.

76. Jessup and Zephir, *Sculpture of Angkor and Ancient Cambodia,* no. 84.

77. Pelliot, *Mémories sur les Coutumes du Cambodge,* 35.

78. Guy, "A Reassessment of Khmer Ceramics," 43–44.

79. The distribution of Khmer monuments in modern-day Thailand and Laos is detailed in Michael Freeman, *A Guide to Khmer Temples in Thailand and Laos* (Bangkok: River Books, 1996). The greatest density of Khmer ceramic finds has occurred in Northeast Thailand, and the wares are well represented in the national museums in Khon Kaen, Ubon, and Phimai, as well as at the Center for Northeast Thai Culture at Wat Mahachai, in Mahasarakham. Roxanna Brown recorded a group of Khmer ceramics found along the eastern coast of peninsular Thailand ("The South-East Asian Wares–Introduction," in *South-East Asian and Chinese Trade Pottery* [Hong Kong: Oriental Ceramic Society, 1979], 146). Very few if any Khmer ceramics appear to have been recovered from the mountaintop burial sites along the border between northern Thailand and Burma, which in the mid-1980s yielded great quantities of Chinese, Thai, Vietnamese, and Burmese ceramics dating to the 14th through 16th centuries. (John Shaw, "Tak Hilltop Burial Sites," *Arts of Asia,* 15, no. 4 [July–August 1985], 95–102, mentions just one Khmer elephant-shaped vessel allegedly found in a grave in this area.)

The presence of Khmer ceramics and associated monuments in southern Vietnam is becoming clearer through renewed excavations at Oc Eo, conducted jointly by the Center of Archaeology, Institute of Social Sciences, Ho Chi Minh City, and the École Francaise d'Extrême-Orient. See Pierre-Yves Manguin and Vo Si Khai, "Excavations at the Ba The/Oc Eo Complex (Viet Nam): A Preliminary Report of the 1998 Campaign," *Proceedings,* 7th International Conference, European Association of Southeast Asian Archaeologists, Berlin, 1998 (in press).

80. Pelliot, *Mémoires sur les Coutumes du Cambodge,* 27. Pelliot translated the Chinese term *qingzhi* literally as "green porcelain" and provided the gloss for celadon. It is probable, however—as suggested by the finds of Chinese ceramics at Khmer sites—that Zhou was referring both to "celadon" (green-glazed stoneware, in Euroamerican terms) and to *qingbai,* porcelain with translucent pale blue glaze.

81. A Maritime Trade Bureau had been established in Quanzhou by the Song in

1087 and reestablished by the Yuan in 1277. Elizabeth Endicott-West, "The Yuan government and society," in *The Cambridge History of China,* vol. 6, ed. Herbert Franke and Denis Twitchett (Cambridge: Cambridge University Press, 1994), 599.

82. Groslier, "Introduction to the Ceramics Wares of Angkor," 30. David Chandler has pointed out that Groslier did not acknowledge the implications of his own discovery of the abundance of Chinese ceramics dating to the fourteenth and perhaps fifteenth century (early Ming)—that the active occupation of Angkor extended well beyond the "decline" in the thirteenth century assumed by earlier historians.

83. Groslier, "Introduction to the Ceramics Wares of Angkor," 21.

84. Until recently such pieces were mistakenly identified as Khmer if they were found within Cambodia.

85. Groslier, "Introduction to the Ceramics Wares of Angkor," 21.

86. Sherds of Chinese qingbai porcelain boxes found at Ban Kruat kiln sites are in the Freer Gallery of Art Study Collection (FSC-P4754-4761, gift of Roy Galloway).

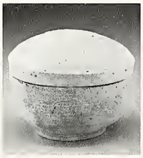
87. This point has been made more generally by Ho Chuimei, "Intercultural Influence between China and South East Asia as seen in Historical Ceramics," in Rosemary Scott and John Guy, eds., *South East Asia & China: Art, Interaction & Commerce,* Colloquies on Art & Archaeology in Asia no. 17 (London: Percival David Foundation of Chinese Art, 1995), 118–40.

88. Tsuda, "Khmer Green Glazed Wares in the Early Period," 124.

89. Ibid.

CATALOGUE

Note to readers: All of these ceramics were made within the Khmer Empire during the Angkorean period (802–1431). In the absence of comparable material dated by archaeological excavation, all dates are approximate.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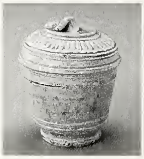
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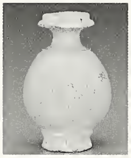
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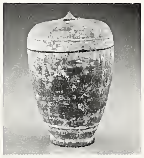
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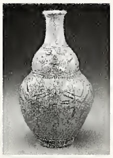
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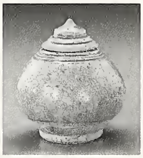
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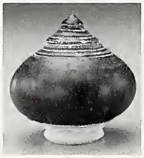
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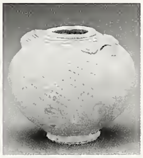
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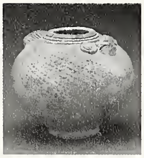
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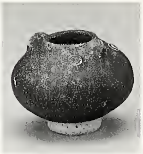
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50 **Cylindrical box with domed lid**
Probably Cambodia, Siem Reap Province, 10th century
White stoneware with ash glaze
10.5 x 14.0
Gift of Osborne and Gratia Hauge
S1996.152

51 **Cylindrical lidded vessel with lotus seed-pod knob**
Probably Cambodia, Siem Reap Province, 10th–11th century
Light gray stoneware with ash glaze
8.6 x 7.5
Gift of Victor and Takako Hauge
S1996.165

52 **Baluster-form bottle**
Probably Thailand, Buriram Province, 11th century
White stoneware with ash glaze
10.9 x 5.9
Gift of Osborne and Gratia Hauge
S1996.139

53 **Cylindrical lidded vessel with pointed knob**
Probably Thailand, Buriram Province, 11th–12th century
Earthenware with traces of white coating
18.8 x 12.7
Gift of Victor and Takako Hauge
S1996.167

54 **Gourd-shaped bottle in the form of a worshiper**
Probably Thailand, Buriram Province, 11th–12th century
Light gray stoneware with ash glaze
29.1 x 16.7 x 17.2
Gift of Osborne and Gratia Hauge
S1996.110

55 **Bud-shaped jar**
Probably Thailand, Buriram Province, 11th–12th century
White stoneware with ash glaze
7.3 x 6.9
Gift of Osborne and Gratia Hauge
S1996.142

56 **Bud-shaped jar**
Probably Thailand, Buriram Province, 11th–12th century
White stoneware with iron glaze
8.1 x 8.3
Gift of Osborne and Gratia Hauge
S1996.135

57 **Bird-shaped lime-paste jar**
Probably Thailand, Buriram Province, 11th–12th century
White stoneware with ash glaze
12.4 x 12.1
Gift of Osborne and Gratia Hauge
S1996.145

58 **Bird-shaped lime-paste jar**
Probably Thailand, Buriram Province, 11th–12th century
White stoneware with ash glaze
7.0 x 9.0
Gift of Osborne and Gratia Hauge
S1996.146

59 **Bird-shaped lime-paste jar**
Probably Thailand, Buriram Province, 11th–12th century
White stoneware with iron glaze
5.9 x 6.4
Gift of Victor and Takako Hauge
S1996.171

60 Bird-shaped lime-paste jar
Probably Thailand, Buriram Province, 11th–12th century
White stoneware with iron glaze
11.0 x 11.3
Gift of Victor and Takako Hauge
S1996.172

61 Conch shell-shaped vessel with animal face
Probably Thailand, Buriram Province, 11th–12th century
White stoneware with ash glaze
9.6 x 18.0 x 11.4
Gift of Victor and Takako Hauge
S1996.168

62 Rabbit-shaped lime-paste jar
Probably Thailand, Buriram Province, 11th–12th century
White stoneware with iron pigment under ash glaze
9.7 x 13.2 x 11.1
Gift of Victor and Takako Hauge
S1996.170

63 Bowl
Probably Thailand, Buriram Province, 11th–12th century
White stoneware with ash glaze
9.1 x 19.5
Gift of Osborne and Gratia Hauge
S1996.128

64 Bowl with incised decor
Probably Thailand, Buriram Province, 11th–12th century
White stoneware with iron glaze
10.6 x 15.5
Gift of Victor and Takako Hauge
S1996.173

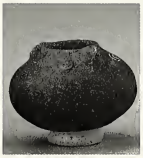
65 Baluster-form jar
Probably Thailand, Buriram Province, 11th–12th century
Brown stoneware with iron glaze
36.8 x 23.0
Gift of Osborne and Gratia Hauge
S1996.117

66 Baluster-form jar with two-color glaze
Probably Thailand, Buriram Province, 11th–12th century
Brown stoneware with iron glaze; laminate of white stoneware over neck, with ash glaze
44.3 x 27.3
Gift of Osborne and Gratia Hauge
S1996.112

67 Ewer
Probably Thailand, Buriram Province, 11th–12th century
Brown stoneware with iron glaze
28.7 x 20.9 x 19.9
Gift of Osborne and Gratia Hauge
S1996.118

68 Ewer
Probably Thailand, Buriram Province, 11th–12th century
White stoneware with ash glaze (spout and ring-handle damaged)
36.0 x 21.1 x 20.1
Gift of Victor and Takako Hauge
S1997.131

69 Lenticular bottle
Probably Thailand, Buriram Province, 11th–13th century
Brown stoneware with iron glaze
8.8 x 15.9
Gift of Osborne and Gratia Hauge
S1996.132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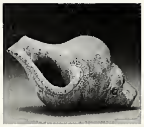
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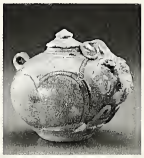
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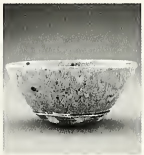
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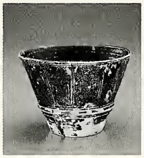
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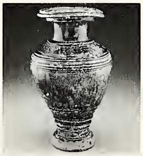
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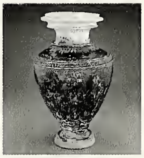
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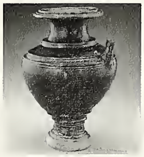
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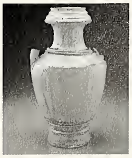
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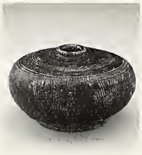
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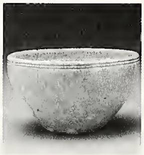
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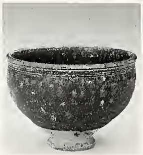
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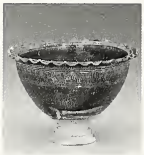
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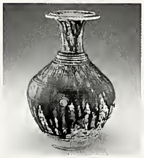
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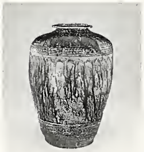
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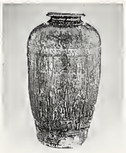
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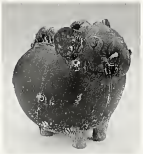
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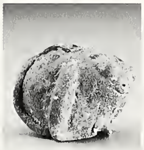
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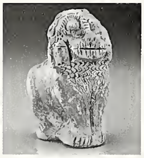
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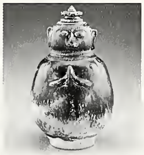

79

70 Bowl with incised lines
Probably Thailand, Buriram Province,
11th–13th century
White stoneware with ash glaze
9.3 x 15.7
Gift of Victor and Takako Hauge
S1996.175

71 Cup
Probably Thailand, Buriram Province,
late 11th–12th century
Brown stoneware with iron glaze
6.5 x 9.0
Gift of Osborne and Gratia Hauge
S1996.121.2

72 Pedestal bowl with interior stand
Probably Thailand, Buriram Province,
late 11th–12th century
Brown stoneware with iron glaze
13.4 x 19.6
Gift of Osborne and Gratia Hauge
S1996.121.1

73 Bottle
Probably Thailand, Buriram Province,
12th–13th century
Brown stoneware with iron glaze
28.7 x 20.0
Gift of Osborne and Gratia Hauge
S1996.113

74 Cylindrical jar
Probably Thailand, Buriram Province,
12th–13th century
Brown stoneware with iron glaze
48.4 x 35.7
Gift of Osborne and Gratia Hauge
S1996.115

75 Cylindrical jar
Probably Thailand, Buriram Province,
12th–13th century
Brown stoneware with iron glaze
66.1 x 39.4
Gift of Osborne and Gratia Hauge
S1996.114

76 Elephant-shaped vessel with spout
Probably Thailand, Buriram Province,
12th–13th century
Brown stoneware with iron glaze
22.2 x 20.8 x 25.2
Gift of Osborne and Gratia Hauge
S1996.124

77 Frog-shaped lime-paste vessel
Probably Thailand, Buriram Province,
12th–13th century
Light brown stoneware with iron glaze
4.5 x 4.9 x 6.5
Gift of Osborne and Gratia Hauge
S1996.149

78 Lion-shaped lime-paste vessel (?)
Probably Thailand, Buriram Province,
12th–13th century
White stoneware with ash glaze
10.1 x 5.0 x 6.8
Gift of Osborne and Gratia Hauge
S1996.150

79 Gourd-shaped bottle in form of a worshiper
Probably Thailand, Buriram Province,
12th–13th century
Light brown stoneware with iron glaze
(neck broken, lid a modern addition)
26.1 x 16.2
Gift of Osborne and Gratia Hauge
S1996.109

80 FRUIT-SHAPED BOX WITH LOBED LID AND STEM-SHAPED KNOB
Probably Thailand, Buriram Province, 12th–13th century
White stoneware with ash glaze
7.1 x 11.7
Gift of Osborne and Gratia Hauge
S1996.151

81 JAR
Probably Thailand, Buriram Province, 12th–13th century
Brown stoneware with iron glaze
40.0 x 30.1
Gift of Victor and Takako Hauge
S1997.132

82 JAR
Probably Thailand, Buriram Province, 12th–13th century
Brown stoneware with iron glaze
34.1 x 30.9
Gift of Victor and Takako Hauge
S1996.157

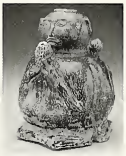
83 VESSEL IN FORM OF TWO HUMAN FIGURES SEATED BACK-TO-BACK, HOLDING LOTUS BLOSSOMS (one of which is a spout)
Probably Thailand, Buriram Province, 12th century or later
Light gray stoneware with iron glaze
25 x 19.5 x 19.6
Gift of Osborne and Gratia Hauge
S1996.107

84 BOTTLE WITH FOUR MALE FACES ABOVE FOUR FEMALE TORSOS
Probably Thailand, Buriram Province, 12th century or later
White stoneware with iron pigment under ash glaze
23.5 x 16.2
Gift of Victor and Takako Hauge
S1997.133

80

81

82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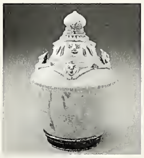
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CONCORDANCE

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